

Action Printer 3260

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User's Guide

**FCC COMPLIANCE STATEMENT
FOR UNITED STATES USERS**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- ☐ **Reorient or relocate the receiving antenna**
- ☐ **Increase the separation between the equipment and receiver**
- ☐ **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected**
- ☐ **Consult the dealer or an experienced radio/TV technician for help.**

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

FOR CANADIAN USERS

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Contents

Introduction

How to Use This Manual	1
Features.. . . .	1
Options and Accessories	2
Where to Get Help for United States Users	3
For United Kingdom Users	4
Important Safety Instructions	6

Chapter 1 Setting Up the Printer

Unpacking the Printer	1-2
Choosing a Place for the Printer	1-3
Ribbon Cartridges	1-5
Installing the Standard Black Ribbon Cartridge	1-5
Installing the Optional Color Upgrade Kit	1-7
Installing the Color Ribbon	1-11
Attaching the Output Guide	1-12
plugging in the Printer	1-13
Running the Self Test	1-14
Loading paper into the paper cassette	1-14
Running the test	1-16
Connecting the Printer to Your Computer	1-17
using software Programs	1-19
Microsoft Windows 3.1 and all Windows Programs	1-19
What is a Printer Driver?	1-21
Fonts with Windows	1-21
Non-Windows Software Programs	1-22
Trying it Out	1-22

Software Tips	1-23
Avoiding smudged pages	1-23
Printing landscape (horizontal) pages	1-23
Keeping page breaks in their proper place	1-23
Using fonts	1-23
Fonts and the control panel	1-24

Chapter 2 Paper Handling

Printing on Single Sheets	2-2
Tips for using the paper cassette	2-2
Loading paper manually	2-4
Using Continuous Paper with Optional Push Tractor	2-5
Installing the push tractor	2-5
Loading continuous paper	2-7
Using the tear-off feature	2-10
Removing the push tractor.	2-11
Switching Between Continuous Paper and Single Sheets	2-13
Switching to single sheets	2-13
Switching to continuous paper	2-14
Printing on Special Paper	2-15
Adjusting the paper-thickness lever	2-15
Envelopes	2-16
Multi-part forms.	2-17
Labels	2-17

Chapter 3 Using the Printer

Operating the Control Panel	3-2
Indicator Lights	3-2
Buttons	3-3
Other control-panel features.	3-4
Selecting Character Fonts	3-5
Using the Default-Setting Mode	3-6
Changing the default settings	3-7
Default-setting features	3-11

Maintenance and Transportation	3-14
Cleaning the printer	3-14
Replacing the ribbon cartridge	3-15
Transporting the printer	3-16
Troubleshooting	3-16
General problems	3-17
Printing problems	3-18
Color printing problems	3-22
Paper handling problems	3-23

Appendix

Technical Specifications	A-2
Printer specifications	A-2
Interface specifications	A-9
Command Summary	A-13
Using the command summary	A-13
General operation	A-13
Paperfeeding	A-13
Page format	A-14
Print position motion	A-15
Font selection.	A-16
Font enhancement	A-17
Spacing	A-18
Character handling	A-19
Bit image	A-21
Graphics	A-21
Color printing	A-22
Character Tables	A-23

Glossary

Index

Introduction

How to Use This Manual

Here's what you'll find in this book:

- ❑ Chapter 1 contains step-by-step instructions for unpacking, setting up, testing, and connecting your printer. Be sure to read and follow these instructions first.
- ❑ Chapter 2 is a detailed discussion of paper handling.
- ❑ Chapter 3 describes how to use the control panel. It also contains maintenance and troubleshooting information
- ❑ The Appendix includes the printer specifications, commands, and character tables
- ❑ A glossary of printer terms and an index are at the end.

Features

Your new Epson' advanced 24-pin dot matrix printer combines high performance with a wide range of features.

- ❑ Fast printing speed-up to 270 characters per second in 15 cpi draft mode.
- ❑ Color option kit is available. (See 'Options and Accessories' below.)
- ❑ Easy paper handling. The built-in paper cassette holds up to 50 single sheets of paper. You can also insert pages manually without removing your paper cassette.
- ❑ Epson ESC/P 2 --enhanced printer control Language provides scalable fonts and improved graphics for sharp output

- ❑ Compatibility. Supports the Epson ESC/P® commands.
- ❑ Two printer positions. You can set the printer vertical or horizontal, whichever you prefer.
- ❑ A range of popular fonts-one draft font, five letter-quality fonts, and four scalable fonts for professional results.
- ❑ Unique control-panel design. The sleek, two-button panel makes it easy to customize the printer's default settings.

Options and Accessories

The following options and accessories are available for your printer:

Epson Ribbon Cartridge (S015060)

Designed especially for your printer, this long-lasting fabric ribbon is extremely easy to install.

Epson Color Ribbon Cartridge (S015061)

For use with the Color Upgrade Kit, this four color fabric ribbon produces up to seven vibrant colors.

Color Upgrade Kit (C83201*)

Optional easy snap-in color kit adds splashes of color to everything from banners and school reports to custom designed **letterheads**.

Tractor Unit (C80026*)

Optional push tractor allows you to print on continuous paper, multi-part forms, banners and labels. Also you can switch between single-sheet and continuous printing without removing either paper supply.

* The last digit in this number varies by country.

Where to Get Help for United States Users

Epson America provides local customer support and service through a nationwide network of authorized Epson dealers and Service Centers.

Epson also provides the following support services through the Epson Connection™ at (800) 922-8911:

- ☐ Assistance in locating your nearest Authorized Epson Reseller or Service Center
- ☐ Technical assistance with the installation, configuration, and operation of Epson products
- ☐ Information on ESC/P 2 drivers for your software
- ☐ Sales of the ESC/P reference manual, which contains comprehensive information on ESC/P 2
- ☐ Epson technical Information library fax service
- ☐ Product literature with technical specifications on our current and new products
- ☐ Sales of ribbons, supplies, parts, documentation, and accessories for your Epson product
- ☐ Customer Relations

Information about user groups

Epson product guarantee

Under the law, goods sold must comply with their description and must be of merchantable quality and fit for their purpose or correspond with any sample.

This guarantee does not affect the seller's legal obligation or the rights of the consumer in the "consumer transactions" under any Statute, including Sections 12 to 15 of the Sales of Goods Act, 1979.

All Epson Products, other than OEM products, are fully guaranteed against faulty operation or performance for a period of ONE YEAR from the date of purchase by the user of the product.

All claims under this guarantee MUST be supported by evidence of purchase, normally the bill of sale invoice, and it is the responsibility of the claimant to furnish such proof. Epson (UK) Limited do not issue or operate any form of guarantee registration card.

Claims are made by the user returning the product to the supplier from whom it was purchased or, if this is impractical, to any Epson supplier who also handles the same product. In the event of any difficulty, users are requested to contact the Service Co-ordinator Manager at Epson (UK) Limited.

This guarantee covers the cost of both the parts and labour required to correct any malfunction of the equipment, but specifically excludes wear and tear, consumables, physical damage due to incorrect use or misuse and damage or faulty operation due to unauthorized and inexperienced repair.

The guarantee is restricted to the performance of the product alone, and Epson (UK) Limited does not accept responsibility for any consequential loss or damage, nor daimed or implied performance, when the product is used in any combination with other equipment or program software.

Product guarantee may be invalidated as a result of excessive or inappropriate use, use in adverse environment or conditions outside the specifications or if the product has been subjected to unapproved modifications.

The guarantee does not cover visits to the user's premises or the repair of commissioning of the product on site.

Use of options

Epson (UK) Limited shall not be liable against any damages or problems arising from the use of any options or consumable products other than those designated as Original Epson Products or Epson Approved Products by Epson (UK) Limited.

Sofety information



Warning: *This appliance must be earthed. Refer to rating plate for voltage and check that the appliance voltage corresponds to the supply voltage.*

Important: *The wires in the mains lead fitted to this appliance are coloured in accordance with the following code:*

*Green and yellow - Earth
Blue - Neutral
Brown - Live*

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals on your plug, proceed as follows:

The green and yellow wire must be connected to the terminal in the plug which is marked with the letter E or with the earth symbol (⚡) or coloured green or green and yellow.

The blue wire must be connected to the terminal in the plug marked with the letter N or coloured black

The brown wire must be connected to the terminal in the plug marked with the letter L or coloured red.

If damage occurs to the plug, replace the cord set or consult a qualified electrician

Replace fuses only with a fuse of the correct size and rating.

Important Safety Instructions

1. Read all of these instructions before you set up your printer.
2. Follow all warnings and instructions marked on the printer.
3. Unplug this printer from the wall outlet before you clean it. Use a damp cloth for cleaning and do not use liquid or aerosol cleaners.
4. Do not use your printer near water or spill any liquid on it.
5. Do not place the printer on an unstable cart, stand, table, or other surface that may allow the printer to fall.

6. Do not block any slots or openings in the cabinet. These are provided for the ventilation necessary to ensure reliable operation and protection from overheating. Placing the printer on a bed, sofa, rug, or *other similar surface may* block the openings. Also, do not place the printer in a built-in installation, such as a bookcase, unless proper ventilation is provided.
7. Never place the printer near or over a radiator or heat register.
8. Use the type of power source indicated on the label. If you are not sure of the type of power available, consult your dealer or local power company.
9. This printer may be equipped with a plug having a third (grounding) pin, which fits only into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into the outlet, have an electrician replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
10. Do not put your printer where the cord will be walked on
11. If you use an extension cord, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord's ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
12. Never push objects of any kind into your printer as they may touch dangerous voltage Points or short out Parts that could result in a risk of fire or electric shock.

13. Except as specifically explained in the user's manual, do not attempt to repair the printer yourself. Opening or removing those covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks. Refer all servicing in those compartments to service personnel.
14. Unplug this printer from the wall outlet and have it repaired by a qualified service person under the following conditions:
 - A. When the power cord or plug is damaged or frayed.
 - B. If liquid has been spilled into it.
 - C. If it has been exposed to rain or water.
 - D. If it does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the printer to normal operation.
 - E. If it has been dropped or the cabinet has been damaged.
 - F. If it exhibits a distinct change in performance, indicating a need for service.

Warnings, Cautions, and Notes



Warnings must be followed carefully to avoid bodily injury.



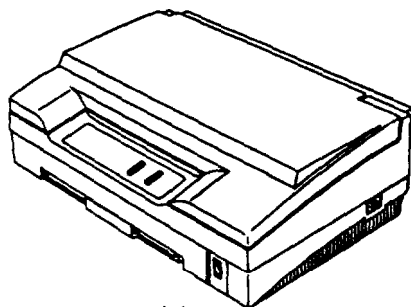
Cautions must be observed to avoid damage to your equipment.

Notes contain important information and useful tips on the operation of your printer.

Unpacking the Printer	1-2
Choosing a Place for the Printer	1-3
Ribbon Cartridges	1-5
Installing the Standard Black Ribbon Cartridge	1-5
Installing the Optional Color Upgrade Kit	1-7
Installing the Color Ribbon	1-11
Attaching the Output Guide	1-12
Plugging in the Printer	1-13
Running the Self Test	1-14
Loading paper into the paper cassette	1-14
Running the test	1-16
Connecting the Printer to Your Computer	1-17
using software Programs	1-19
Microsoft Windows 3.1 and all Windows Programs	1-19
What is a Printer Driver?	1-21
Fonts with Windows	1-21
Non-Windows Software Programs	1-22
Trying it Out	1-22
Software Tips	1-23
Avoiding smudged pages	1-23
Printing landscape (horizontal) pages	1-23
Keeping page breaks in their proper place	1-23
Using fonts	1-23
Fonts and the control panel	1-24

Unpacking the Printer

Your printer box should include these items.



printer



output guide



power cord



cable clip



ribbon cartridge

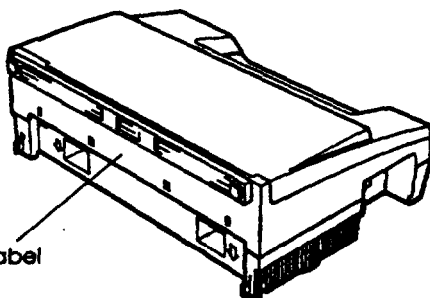
Note:

In some locations the power cord may be attached to the printer.



Caution:

Check that the voltage on your printer matches the voltage of your power supply. If the lable on the back of the printer does not show the correct voltage for your country, contact your dealer.



label

Removing the protective materials

The printer is protected during shipping by several pieces of packing material that must be removed before you turn on the printer.

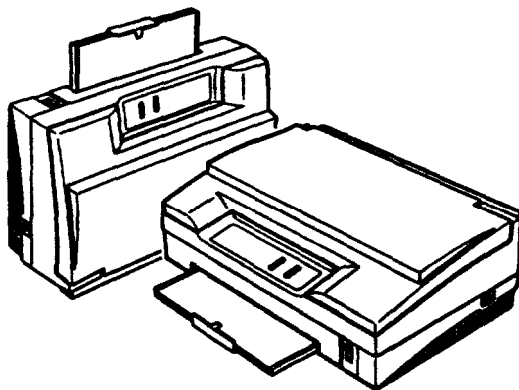
Please see the Notice Sheet inserted in your printer for instructions on removing the protective materials. Then store them with the other packing material.

c Caution:

Be sure to remove all protective materials before you turn on the printer.

Choosing a Place for the Printer

The printer works horizontally or vertically, as shown below. You can set it whichever way fits your work space.



When selecting a place for your printer, follow these guidelines:

- ☐ Place the printer on a flat, stable surface.

- ❑ Do not slide the printer on rough surfaces; otherwise you may damage the flap on the bottom.
- ❑ Place the printer close enough to the computer for the cable to reach.
- ❑ Leave enough room for easy operation and maintenance.
- ❑ Avoid locations that are subject to direct sunlight, excessive heat, moisture, or dust
- ❑ Use a grounded outlet; do not use an adapter plug.
- ❑ Place the printer where you can easily unplug the power cord.
- ❑ Avoid electrical outlets controlled by wall switches or automatic timers. Avoid outlets on the same circuit as large motors or other appliances that can cause power fluctuations.
- ❑ Keep the entire computer system away from potential sources of electromagnetic interference, such as loudspeakers or the base units of cordless telephones.

If you plan to use a printer stand, follow these guidelines:

- ❑ Use a stand that supports at least 9 kg (20 lb).
- ❑ With the optional push tractor, make sure to provide enough clearance below the stand so your continuous paper feeds smoothly.
- ❑ With the optional push tractor, place cables so they do not interfere with paper feeding secure them to a leg of the stand if possible.
- ❑ With the optional push tractor, align the paper stack so that the paper feeds straight into the tractor's sprocket units.

Ribbon Cartridges

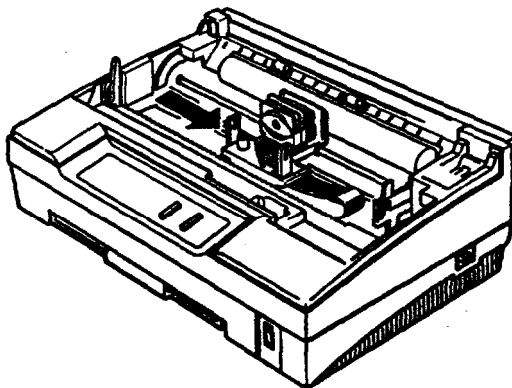
Two types of ribbon cartridges are available:

- ❑ SO15060 Black
- ❑ SO15061 Color (optional)

Before you can use a color ribbon you must install the optional color upgrade kit. See page 1-7 for instructions.

Installing the Standard Black Ribbon Cartridge

1. Make sure the power cord is not plugged into an electrical outlet.
2. Use the tabs on the front of the printer cover to lift it off the printer. Then slide the print head to the middle of the printer.

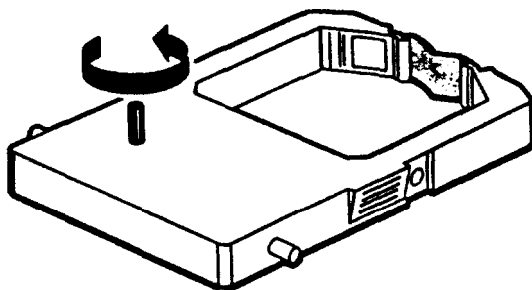




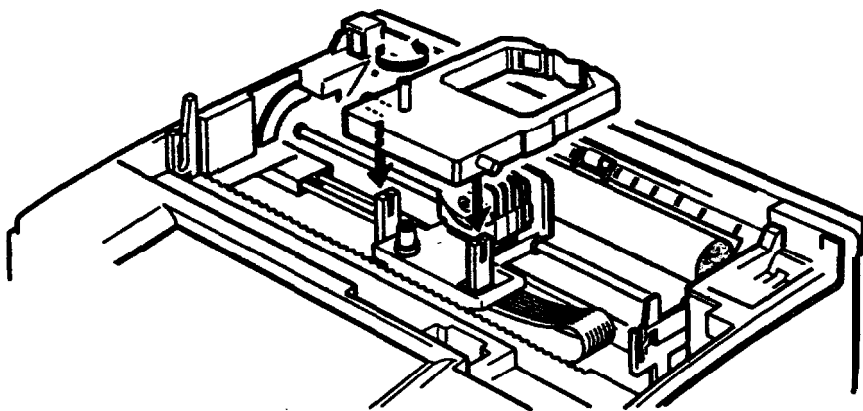
Caution:

Never move the print head while the printer is turned on; this can damage the printer. Also, if you have just used the printer, let the print head cool for a few minutes before you touch it.

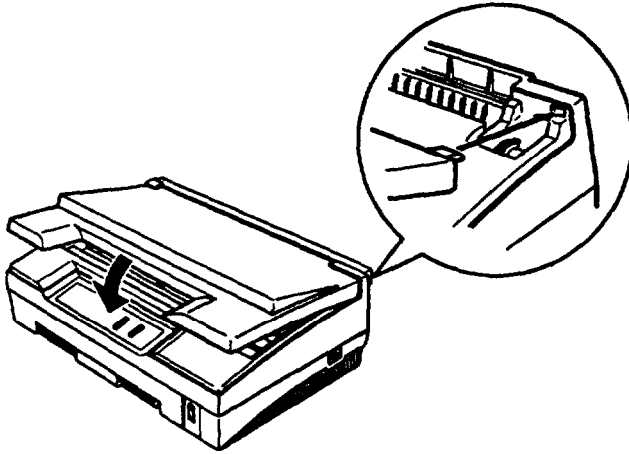
3. Turn the ribbon-tightening knob in the direction of the arrow to remove any slack in the ribbon.



4. Insert the ribbon cartridge into the printer as shown; then press both sides of the cartridge firmly to fit the plastic posts into the slots.



5. Turn the ribbon-tightening knob to ease the ribbon into place. Make sure it is not twisted or creased.
6. Replace the printer cover by inserting its tabs into the holes on the printer as shown below, then close the cover.

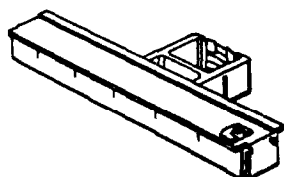


Installing the Optional Color Upgrade Kit

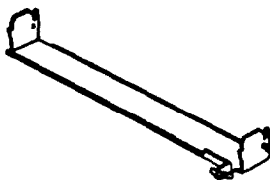
Before installing the color ribbon cartridge, you must install the optional color upgrade kit

After you install the color upgrade kit, see “Using Software Programs” later in this chapter for instructions on how to set up your software for a color printer. Then see your software manual for instructions on how to use color in your documents. The printer must receive color commands from your software to print in color.

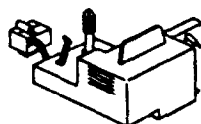
The optional color upgrade kit includes these items.



color ribbon
cartridge

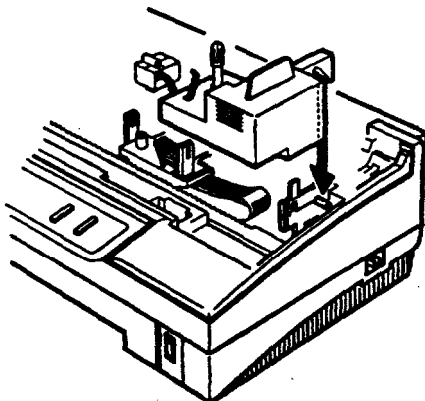


bracket

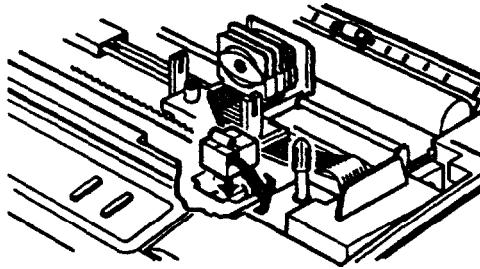


motor unit

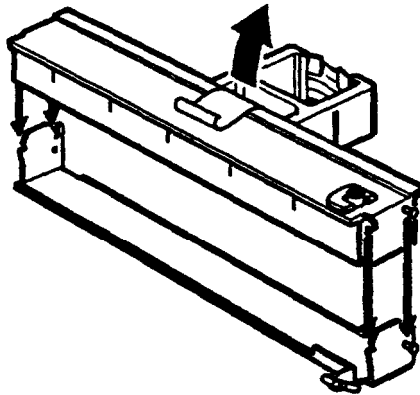
1. Put the motor unit in the printer, as shown below, grasping the installation tab.



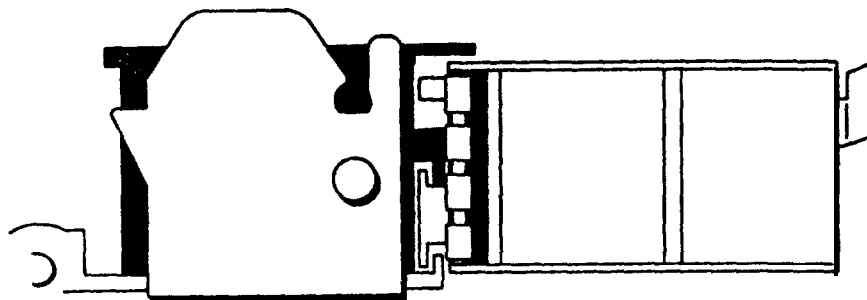
2. Remove the connector cover on the printer. Next, insert the motor unit plug into the connector on the printer, as shown below.



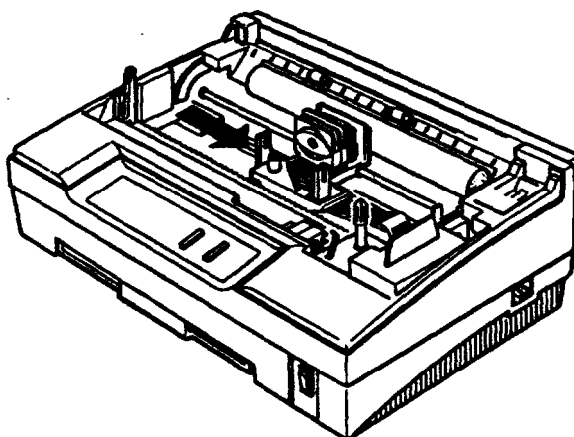
3. Attach the ribbon cartridge to the bracket. Next, remove the packing tape.



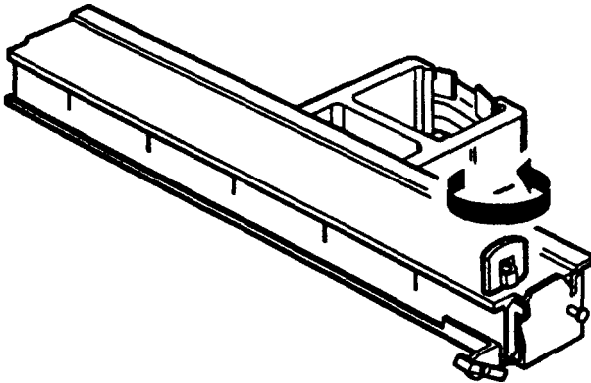
4. Make sure the pins under the ribbon cartridge are placed correctly inside of the bracket as shown below.



5. Move the print head to the middle of the printer and move the sliding part of the ribbon to the middle of the ribbon cartridge.



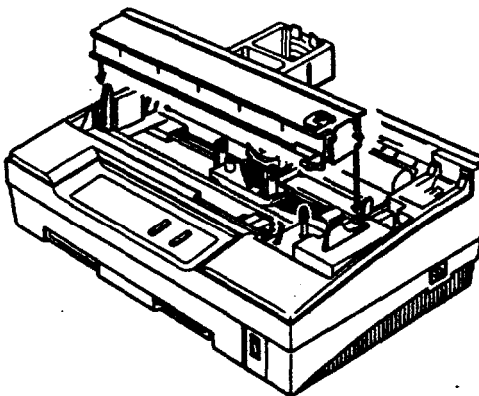
6. Turn the ribbon-tightening knob in the direction of the arrow to remove any slack in the ribbon.



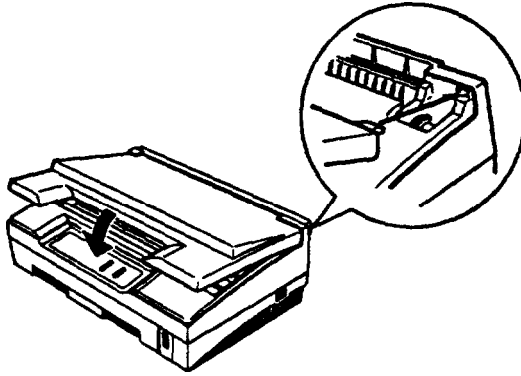
Installing the Color Ribbon

The optional color upgrade kit must be installed before you install the color ribbon.

1. Insert the ribbon cartridge (installed in the bracket) into the printer as Shown; then press both sides of the cartridge firmly to fit the posts into the slots.

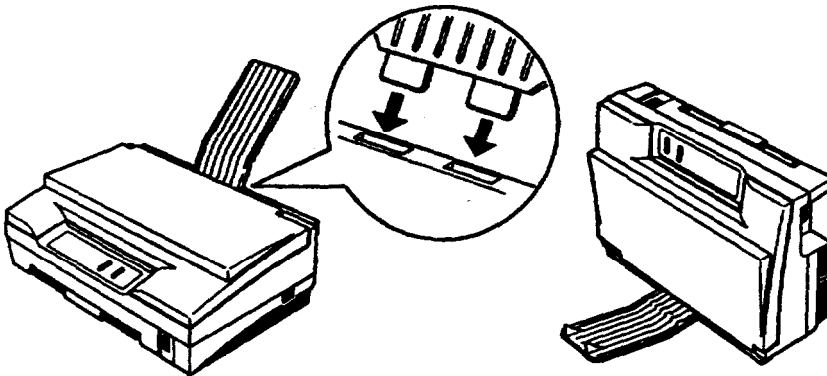


- 2 Turn the ribbon-tightening knob to ease the ribbon into place. Make sure it is not twisted or creased.
3. Replace the printer cover by inserting its tabs into the holes on the printer as shown below; then close the cover.



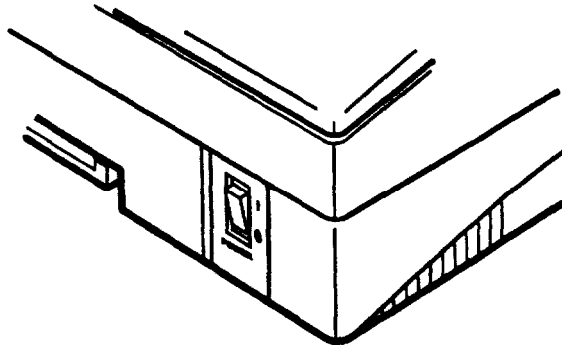
Attaching the Output Guide

You can install the output guide to support printed pages as they come out of the printer. To install it, insert the tabs on the guide into the mounting slots on the printer case as shown below. Be sure to turn the guide over and install it in the opposite direction when you use the printer in the vertical position



Plugging in the Printer

1. Make sure the power switch on the printer is turned off. It is off when the 0 on the switch is pressed down.



2. Check the label on the back of the printer to make sure the voltage required by the printer matches that of your electrical outlet.



Caution:

If the rated voltage and your outlet voltage do not match, contact your dealer for assistance. Do not plug in the power cord.

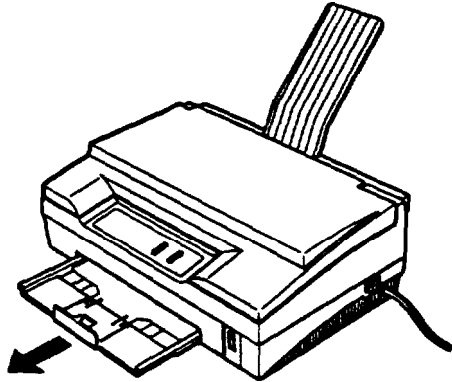
3. If the power cord is not attached to the printer, connect it to the AC inlet on the printer.
4. Plug the power cord into a properly grounded electrical outlet.

Running the Self Test

You can run the self test with either continuous paper or single sheets; this section describes the easiest way, with single **sheets**.

Loading paper into the paper cassette

1. Pull the paper cassette out of the printer.

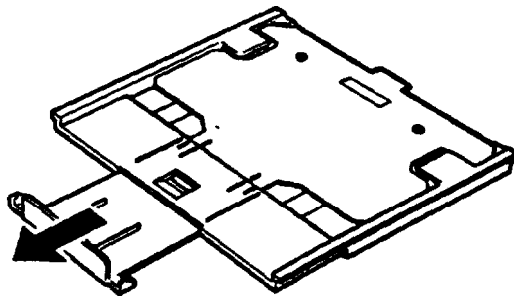


2. Fan a stack of A4 or letter-size paper and then tap it on a flat surface to even the edges.

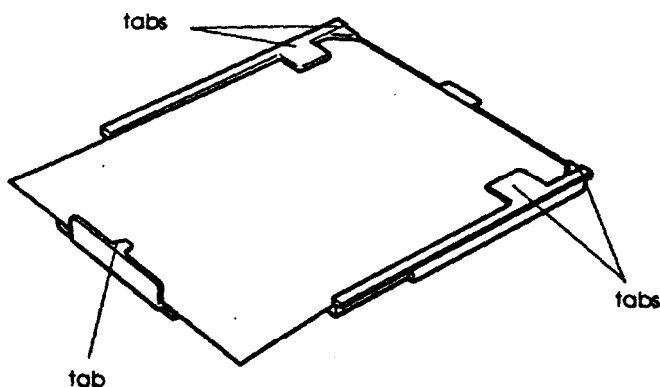
Note:

The US version uses letter-size paper; all others use A4 paper. The paper size (letter or A4) is shown on the inside of the paper cassette. The cassette holds up to 50 sheets (70 kg or 22 lb maximum).

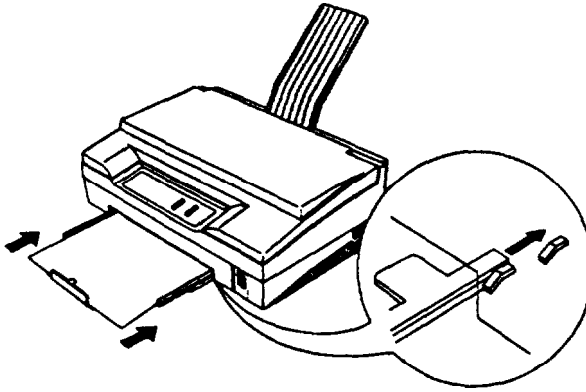
3. Pull out the paper support.




4. We holding down the metal plate in the paper cassette, as shown below, put the paper in the cassette. Make sure the paper is underneath all five tabs, especially the small ones on the top edge of the cassette.



5. Insert the paper cassette into the printer as far as it will go. The edge of the paper stack extends beyond the front of the printer.



Running the test

1. Make sure the printer is turned off.
2. While holding down the FF (FORM FEED ) button, turn on the printer. It loads the paper automatically and begins the self test.

The printer prints characters in the current font and character table. If the optional color upgrade kit is installed, the self test is in color. Here is part of a typical self test:

Note:

If the paper cassette is empty when you turn the power on, the printer beeps three times and the light blinks. Load paper as described earlier in this chapter; then press the FF button to start the self test.

3. To stop the self test, turn off the printer.

Each time you turn on the printer, it beeps four times -- two long and two short.

Note:

If you hold down both the FF and the FONT buttons while you turn on the printer, it prints a special demonstration page that describes and illustrates many features.

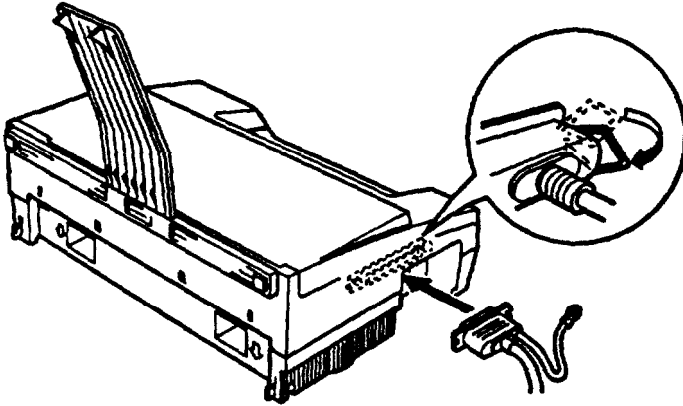
Connecting the Printer to Your Computer

If the self test prints correctly, you're ready to connect your printer to the computer. You need a shielded twisted-pair parallel cable to connect your computer to the printer's built-in parallel interface.

Follow these steps to connect the parallel interface cable:

1. Make sure both the printer and computer are turned off; then plug the cable connector securely into the printer's interface connector.

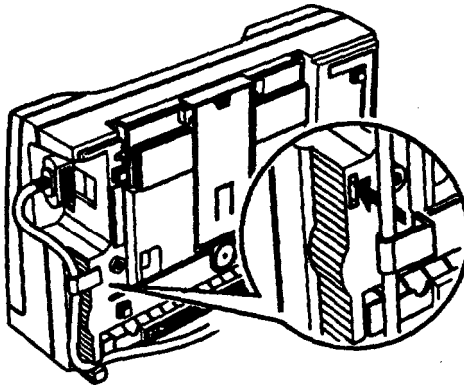
2. Squeeze the wire clips together until they lock in place on either side.



Note:

If your cable has a ground wire, connect it to the ground connector below the interface connector.

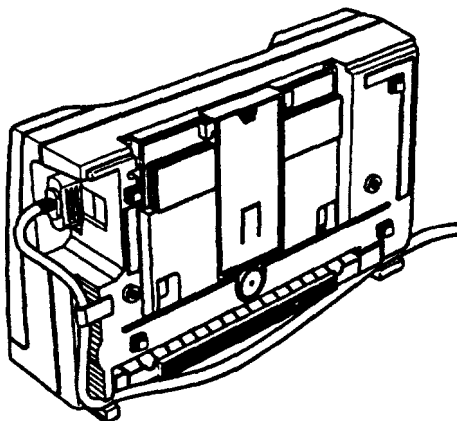
3. Put the cable through the cable clip; then insert the clip in the slot on the bottom of the printer.



4. Plug the other end of the cable into the computer. If there is a ground wire at the computer end of the cable, attach it to the ground connector at the back of the computer.

Note:

If you want the power cord or interface cable to be on the opposite side, route it through the slot on the back



Using Software Programs

To take full advantage of your printer's features, find the instructions for your software programs below. Also see the software tips at the end of this chapter.

Microsoft Windows 3.1 and all Windows Programs

If Windows is already installed on your system, follow the steps below to set it up with your printer. Then your printer will work correctly for all your Windows programs, such as Word for Windows, Lotus'1-2-3-' for Windows, and CorelDRAW.'

If Windows is not already installed on your system, run the setup program as described in the Windows documentation and follow steps 4 through 10 below when you reach the section for choosing a printer.

1. In the window labeled **Main**, double click the **Control Panel** icon.
2. Double click the **Printers** icon.
3. Choose the **Add>** button on the right side of the screen.
4. In the list of printers **box**, select **Epson ActionPrinter 3260 or LQ-150**.

If ActionPrinter 3260 and LQ-150 are not available, select Epson LQ-60 or Epson LQ-2550 if you plan to use color. If you do not plan to use color, choose Epson Stylus 800, Epson LQ-570+, Epson AP-3250, or Epson LQ-870.

5. Choose the **install** button. A dialog box may instruct you to insert a diskette.
6. If necessary, insert the diskette required
7. Choose the **Setup** button
8. Select 360 x 180 as the Resolution.
9. If you selected the LQ-860, LQ-2550, LQ-570+, or LQ-870 printer, select **Sheet Feeder - Bin 1** as the Paper Source. This step is very important for proper page breaks in your documents
10. Choose the **OK** button.
11. Highlight **Epson ActionPrinter 3260 or LQ-150** (or the printer you added) and click the button labeled **Set As Default Printer**.

12. Click the **Close** button.

You have now installed the printer driver for Windows.

What is a Printer Driver?

The software you use to enter and format your documents sends codes that run (or ‘drive’) your printer. These software codes select the font, margins, page size, line spacing, and other features of the document you are printing. Therefore, it is important that you choose the right printer driver and install it correctly from your software package. If there is a problem with the appearance of your document, a software setting could be the cause.

Fonts with Windows

Microsoft Windows standard drivers use scalable TrueType fonts rather than the fonts built into the printer. Windows fonts look the same on the screen as they do in your printed document, (This feature is called WYSIWYG, What You See Is What You Get.) All programs that run under Windows can use the Windows printer driver to print their files. Therefore, you have access to the full range of TrueType fonts if you use one of the Windows drivers listed above.

If you want to use the printer’s internal fonts as well as the TrueType fonts, contact Microsoft Windows Product **Support** and ask for a driver that uses both kinds of fonts.

Non-Windows Software Programs

Most application programs let you specify the type of printer you use so that the program can take full advantage of the printer's features. Many programs provide an installation or setup menu that presents a list of printer&

To take the full advantage of your printer's features, choose ActionPrinter 3260 or LQ-150. If neither of those printers is available, select LQ-860 or LQ-2550 if you plan to use color. If you do not plan to use color, choose Stylus 800, LQ-570+, ActionPrinter 3250, or LQ-870.

Note

For any of the LQ printers except the LQ-150 be sure to choose Sheet Feeder Bin 1 or the equivalent in the printer setup.

If your software program does not list the ActionPrinter 3260 or the LQ-150, you can also contact the manufacturer of your software to see if an update for your printer is available.

If none of the printers mentioned above is available in your software program, you can choose LQ-570+, LQ570, or LQ-100 for good quality text and graphics but no color support. If those printers are also not available, choose any Epson printer or standard printer or draft printer.

Trying it Out

After you have set up your software programs for your printer as described above, create a document using the **fonts**, **symbols**, **features**, and formats that you use most often and then print the document. This shows you how the printer works with your software program.

If the printing results are not what you expect, see ‘Troubleshooting’ in Chapter 3, or consult your computer or software manual.

Software Tips

Avoiding smudged pages

When you print full resolution graphics (360 x 360 dpi), the result may have a slightly smudged appearance. If this occurs, choose 360 x 180 resolution using your application software. You can also try adjusting the paper-thickness lever as described on page 2-15.

Printing landscape (horizontal) pages

Dot matrix printers do not have built-in fonts for printing in landscape. You may use Microsoft Windows or programs such as Allways or Sideways to do this.

Keeping page breaks in their proper place

There is an area at the top and bottom edges of each sheet that the printer must use to load and feed the paper. You cannot print on these portions of the page.

If the margins and page breaks in your document do not take into account these unprintable areas, you may find that the printing position is too low on the page or that part of one page is printed at the top of the next page. Your software may be set to print on continuous paper or to print too many lines on a page. To correct this problem, try the following:

- ❑ Select single sheets or sheet feeder bin 1 in your software.

- ❑ Reduce the maximum number of lines per page.
- ❑ Reduce the top and bottom margins in your software.

Using fonts

There are two sources for the fonts you use in your documents: internal and downloaded. In addition to the internal fonts built into your printer, many programs can send their own fonts to the printer in the same way they send your documents. For instance, Lotus 1-2-3 creates and sends the fonts that it uses to print spreadsheets.

Whether you use internal fonts or fonts downloaded from software, you will most likely need to select your fonts through your software.

Fonts and the control panel

Your software sends font **commands** along with the document to the printer. If these font commands are different from what you selected on the printer's control panel, the software commands always override control panel settings. For this reason, you need to make your font selections through software.

Use the control panel for font selection only when you are sending unformatted text to the printer directly from MS-DOS or when you are using a simple software package that does not **include font selections**.

Chapter 2

Paper Handling

Printing on Single Sheets	2-2
Tips for using the paper cassette	2-2
Loading paper manually	2-4
Using Continuous Paper with Optional Push Tractor	2-5
Installing the push tractor	2-5
Loading continuous paper	2-7
Using the tear-off feature	2-10
Removing the push tractor	2-11
Switching Between Continuous Paper and Single Sheets	2-13
Switching to single sheets	2-13
Switching to continuous paper	2-14
Printing on Special Paper	2-15
Adjusting the paper-thickness lever	2-15
Envelopes.	2-16
Multi-part forms	2-17
Labels..	2-17

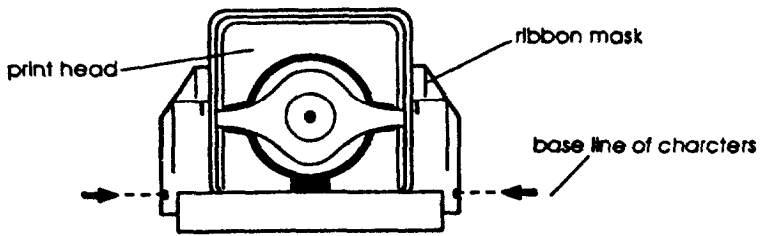
Printing on Single Sheets

You can load standard-sized single sheets with the paper cassette and you can load single sheets of paper from 148 mm (5.8 inches) to 257 mm (10.1 inches) wide with the manual insertion slot.

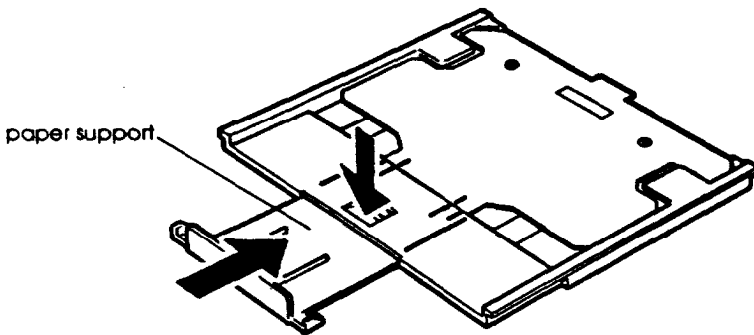
Tips for using the paper cassette

To review the steps for loading paper in the paper cassette, see “Loading paper into the paper cassette” on page 1-12. The tips below help you get the best performance when printing with the cassette.

- ❑ Load paper in the paper cassette before you turn on the printer. When the printer receives the data from the computer, it loads a single sheet automatically and begins to print
- ❑ If the printer runs out of paper during a print job, reload the paper cassette and press the FF button to load the paper.
- ❑ Press the FF button to eject a sheet of loaded paper.
- ❑ You can adjust the top-of-form position with the gear under the printer cover. It is marked by + and - signs. Open the printer cover and turn the gear to adjust the position. The notches on the ribbon mask indicate the base line of printed characters. The gear adjustment affects only the loaded page. If you want to change the top-of-form position permanently, you can adjust it in the default-setting mode described in Chapter 3. However, most application software programs take care of the top and bottom margins. You usually don't need to set the top-of-form position on the printer.



- ❑ When you want to **push** the paper support back into the paper cassette, first remove paper from the paper cassette. Then push the paper support in while pushing down on the locking tab.

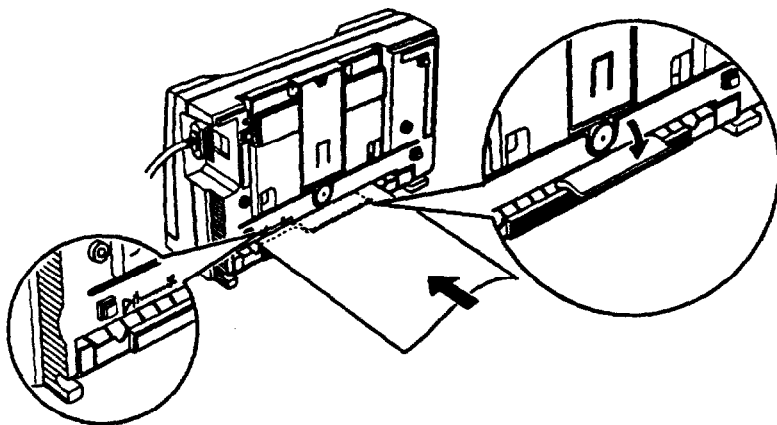


- ❑ The default page length for the paper cassette is 65 lines (A4-size paper) and 61 lines (letter-size paper). If you need to change it use your application software or printer commands. See the Appendix for more about printer commands.
- ❑ **You can switch to manual** insertion or to the optional push tractor without removing the paper cassette. For instructions, see ‘Loading paper manually’ or “Switching Between Continuous Paper and Single Sheets” later in this chapter.

Loading paper manually

You can load single sheets of paper from the rear manual insertion slot. (If you have installed the optional push tractor, remove it before loading paper manually.)

1. Place the printer in the upright position and turn it on.
2. Next, lower the flap on the rear slot. Then insert a single sheet into the slot, aligning the paper edge with the arrow mark on the printer case. The page loads automatically. When the printer receives data, it begins printing.



Be sure to raise the flap when you are not using manual insertion.



Caution:

Be sure to turn on the printer before you insert the page into the slot. If you turn on the printer after insertion, the printer prints on the platen without loading the paper.

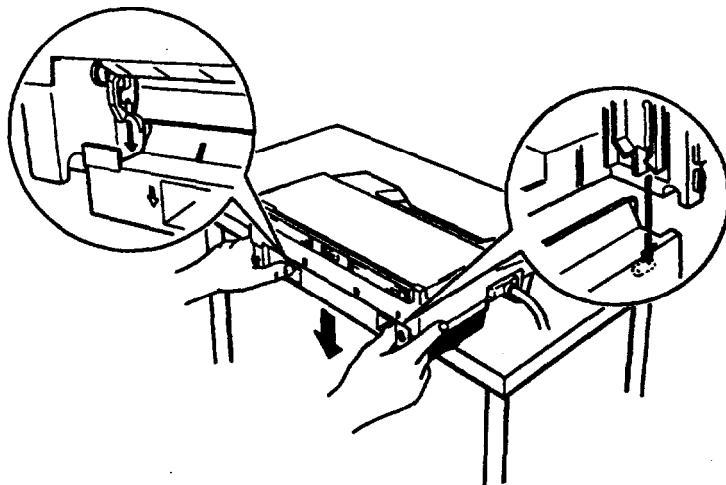
- ❑ You can adjust the top-of-form position for manual insertion in the same way as you do for single sheets of paper fed from the paper cassette. See "Changing the default settings" in Chapter 3.
- ❑ When you want to switch to the paper cassette, press the FF button without inserting a page into the rear slot. The printer loads the paper from the cassette.

Using Continuous Paper with Optional Push Tractor

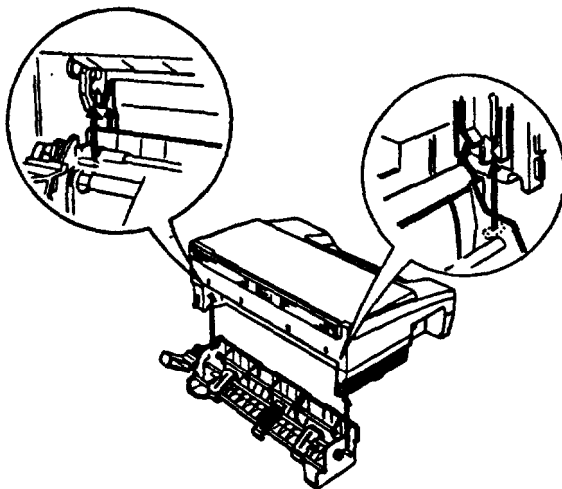
You can use the optional push tractor to print on continuous paper from 101 mm (4 inches) to 254 mm (10 inches) wide.

Installing the push tractor

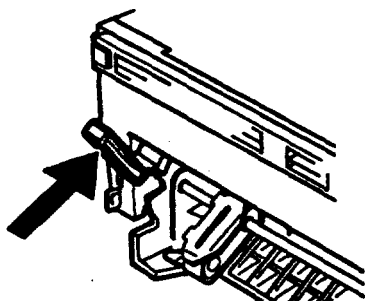
1. Make sure the printer is turned off and in the horizontal position. Remove the paper guide.



2. Make sure the paper-release lever is lowered to the single-sheet position.
3. Hold the tractor as shown and fit the edges of both sides into the slots at the back of the printer. Then lift it straight up until you hear the unit snap into place.

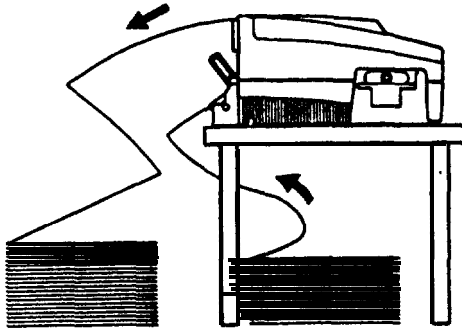


4. Raise the paper-release lever and push it firmly into the continuous-paper position.



Loading continuous paper

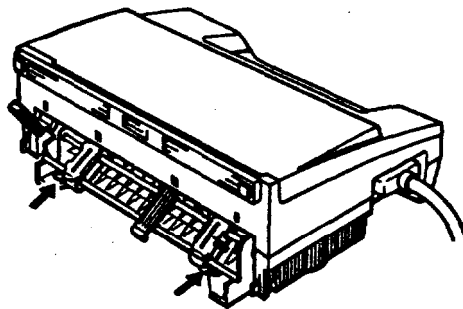
1. Place the continuous paper supply below the printer so the paper feeds smoothly into the printer as shown. (You can also use a printer stand.)



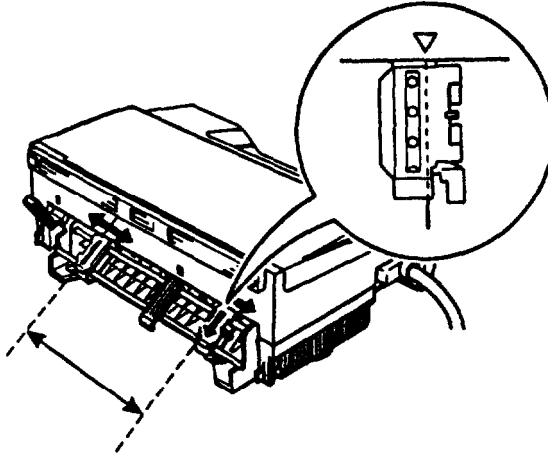
Caution:

When you are using labels with the tractor, always put the paper supply below the printer and have the printed pages feed out from the back of the printer. Otherwise, the labels may come off their backing and cause a jam.

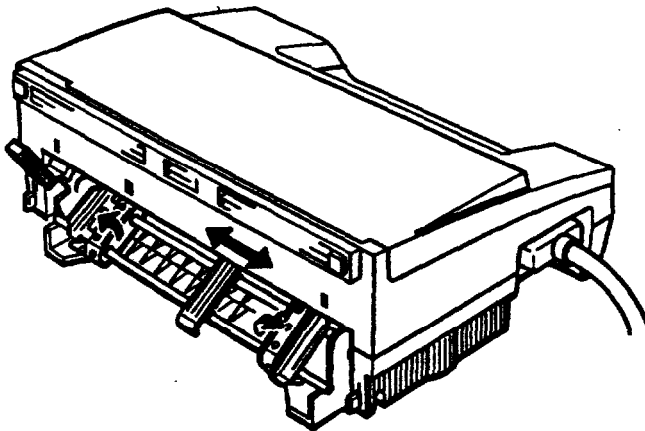
2. Make sure the paper-release lever is in the upper position.
3. Release the sprocket units by pushing the lock levers up.



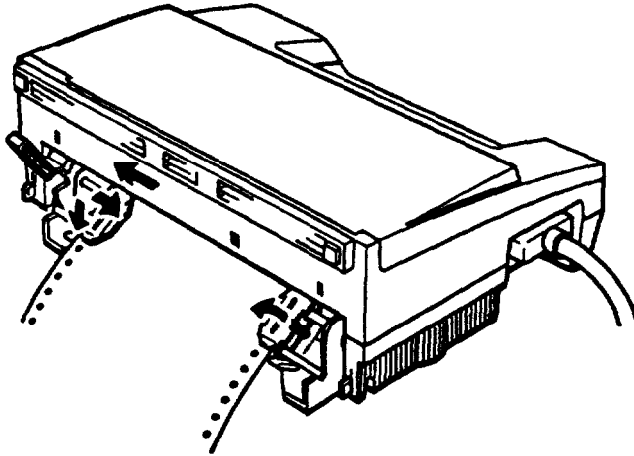
4. Adjust the right sprocket unit, aligning the paper edge with the arrow mark on the case, and lower the lock lever to lock it in place. Then slide the left sprocket unit to match the width of your paper, but do not lock it.



5. Position the paper support midway between the two sprocket units. Open both sprocket covers



6. Note that the printer prints on the underside of the paper. Make sure your paper has a clean, straight edge. Fit the first three holes of the paper over the sprocket pins, and then close the sprocket covers. Slide the left sprocket unit to remove any slack in the paper. Then push the lock lever down to lock it in place.



7. Turn on the printer. It advances the paper to the loading position automatically upon receiving data.

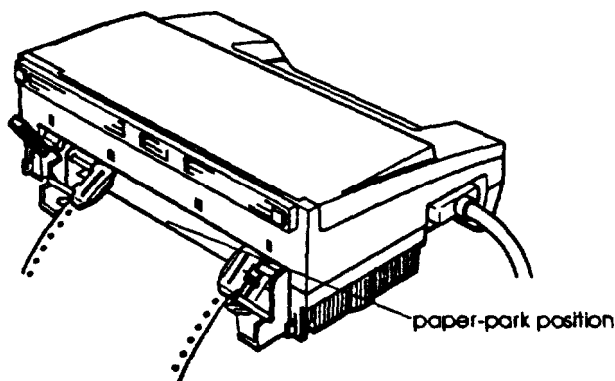
Note:

If the printer runs out of paper during a print job, load additional paper on the push tractor and then press the FF button.

Tips for using continuous paper

- ☐ If you want to change the top-of-form position permanently, adjust it with the default-setting mode as described in Chapter 3.

- ❑ Each time you turn on the printer with paper loaded, it reverses the continuous paper to the paper-park position and then advances it to the next top of form. Always remove your printed sheets before you turn off the printer to keep the top-of-form position accurate.
- ❑ You can adjust the top-of-form position temporarily. Open the printer cover and turn the gear marked by + and - signs to adjust the position. This adjustment is lost when you turn off the printer or feed the paper backward to the paper-park position by pressing the FF and FONT buttons at the same time.



Using the tear-off feature

When you use continuous paper, the tear-off feature makes it easier to tear off the last printed sheet and saves the paper normally lost between documents.

Note

You can tell the printer to feed the perforation of your paper to either the edge of the printer cover or approximately eight centimeters (three inches) beyond by setting the tear-off feature as described in Chapter 3.

Here's how the tear-off feature works

1. When the printer finishes printing the last page, and the print head locates the top-of-form position on the next page, it automatically advances the paper to the tear-off position.
2. The READY 9 light blinks to indicate the printer is in the tear-off mode.
3. You can easily tear off the page along the perforation.
4. When the printer receives data, it feeds the paper backward to the top-of-form position and the printer begins printing.

Removing the push tractor

1. Tear off the printed pages. Press the FF and FONT buttons at the same time to feed the *remaining* paper backward to the paper-park position. Remove the paper from the push tractor.

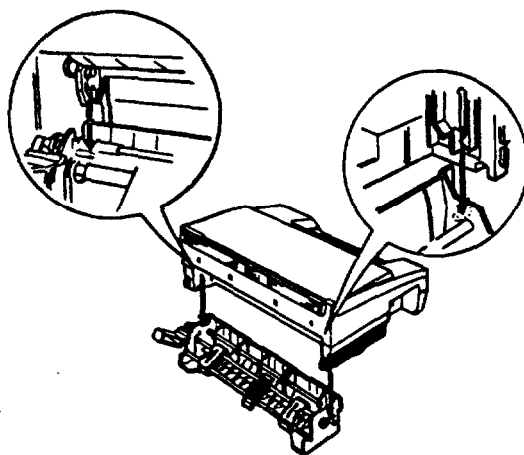


Caution:

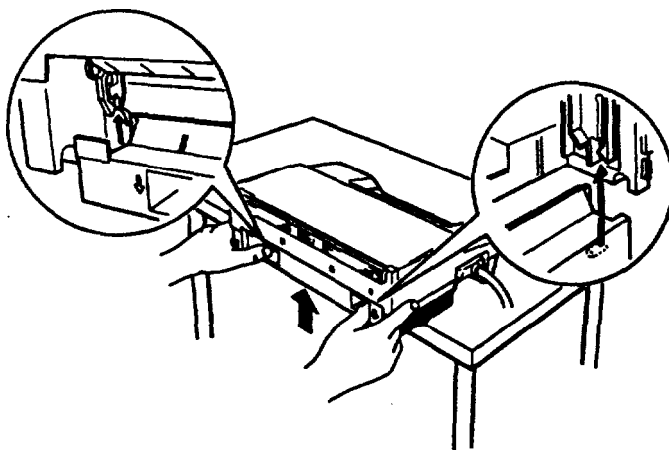
Always tear off the printed document and excess paper before feeding paper backward. Never feed more than one page backward through the printer.

2. Turn off the printer.

3. Lower the paper-release lever to the single-sheet position. Then pull the push tractor straight down and out of the printer.



4. Replace the paper guide.



Switching Between Continuous Paper and Single Sheets

When you use the push tractor, you can easily switch to single-sheet printing without removing the continuous paper supply.

Switching to single sheets

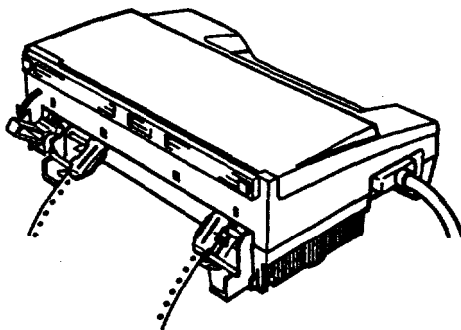
Here is how to switch from continuous paper to single sheets:

1. If you have a printed document still in the printer, tear off the printed pages and then press the **FF** and **FONT** buttons at the same time. This moves the remaining paper back to the paper-park position



Caution:

- ☐ *Always tear off printed pages before back-feeding; back-feeding too many sheets can cause a paper jam.*
 - ☐ *Never feed labels backward. They can easily peel off of their backing and jam the printer. See "Labels" later in this chapter for information on removing labels from the push tractor.*
2. Lower the paper-release lever to the single-sheet position.





Caution:

*If you lower the paper-release lever while **continuous paper** is still loaded, the printer beeps and the READY light goes off. If this happens, raise the paper-release lever and press the FF and FONT buttons at the same time to reverse the paper to the paper-part position. You can then lower the lever again.*

3. The printer is ready to print. When it receives data, it automatically loads a single sheet from the paper cassette and begins to print.

Switching to continuous *paper*

To switch from single sheets back to continuous paper, follow these steps:

1. If a single sheet is in the paper path, press the FF button to eject it.
2. Push the paper-release lever firmly into the continuous-paper position.



Caution:

If you raise the paper-release lever when a single sheet is in the paper path, the printer beeps and the READY light goes off. In this case, lower the paper-release lever and press FF to eject the page completely. You can then raise the lever again.

3. The printer is ready. When the printer receives data, it loads continuous paper from the push tractor automatically and begins to print.

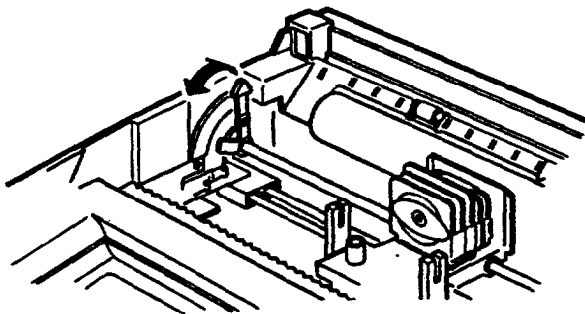
Printing on Special Paper

In addition to printing on single sheets and continuous paper, your printer can print on a wide variety of other paper types, such as envelopes, labels, and multi-part forms.

Adjusting the paper-thickness lever

Before you print on special paper, you need to change the paper-thickness setting for the paper you are using.

1. Remove the printer cover and set the paper-thickness lever to match the thickness of your paper. Choose the setting from the table below.



Paper Type	Lever Position
Ordinary (single sheets or continuous)	0
Multi-part forms (carbonless) 2 sheets (Original + 1 copy)	0
Labels	1
Envelopes	2

Note

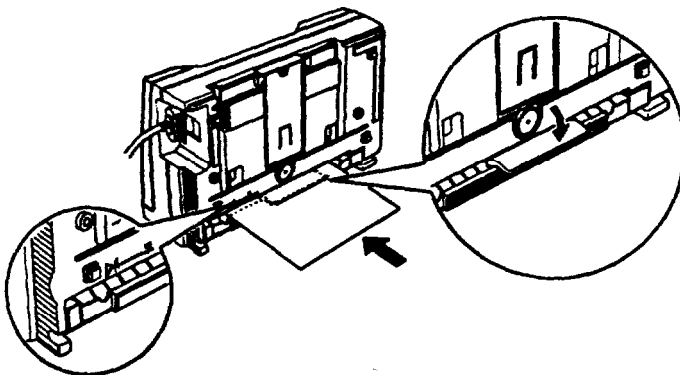
If you set the paper-thickness lever to 1 or 2, the *print speed is reduced.*

2. Replace the cover.

Envelopes

You can use the manual insertion slot to print on individual envelopes.

- ❑ Before loading an envelope, set the paper-thickness lever to position 2 and lower the flap on the printer's rear.
- ❑ Always load envelopes manually through the rear slot. To load an envelope, follow the steps described in 'Loading paper manually' earlier in this chapter.
- ❑ Always feed envelopes by inserting the wide edge into the printer first, as shown.



- ❑ Use envelopes under normal temperature and humidity conditions.

**Caution:**

Printing on the edge of an envelope can damage the print head. Make sure your application program keeps the printing entirely within the printable area of the envelope. For more information on the printable area, see the Appendix.

Multi-part forms

You can use carbonless continuous multi-part forms consisting of two sheets (one original plus one copy).

- ☐ Use only multi-part forms joined with spot-gluing that is free of wrinkles and waves. Never print on multi-part forms joined with metal staples, tape, or continuous gluing.
- ☐ Set the paper-thickness lever to position 0 when printing on multi-part forms.
- ☐ Load multi-part forms with the optional push tractor only. You load multi-part continuous paper the same way as ordinary continuous paper. For details, see ‘Loading continuous paper’ on page 2-7.
- ☐ If you need to adjust the top-of-form position, use your application software or change the default top-of-form position as described in Chapter 3. You may have to experiment to get the position you want.

Labels

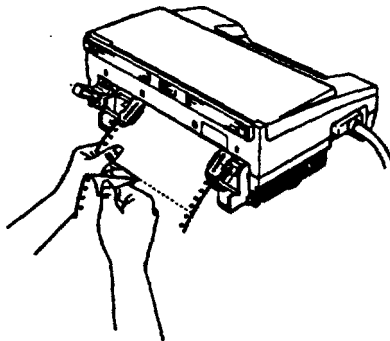
You can use the push tractor to print on labels. For best results, pay attention to these special considerations:

- ☐ Always choose labels mounted on a continuous backing sheet with sprocket holes for use with a tractor. Do not try to print labels on single sheets because labels on a shiny backing sheet almost always slip a little.

- ❑ Always set the paper-thickness lever to position 1.
- ❑ Never feed labels backward. They can easily peel off the backing and jam the printer.
- ❑ Because labels are especially sensitive to temperature and humidity, use them only under normal operating conditions.
- ❑ Make sure the printing stays entirely within the printable area of the labels. For more information on the printable area, see the Appendix.
- ❑ Never leave labels loaded in the printer between jobs. If you turn on the printer with labels loaded, the printer feeds them backward to the paper-park position, possibly resulting in a paper jam

Removing labels from the printer

1. Tear off the fresh supply of labels at the rear of the printer.



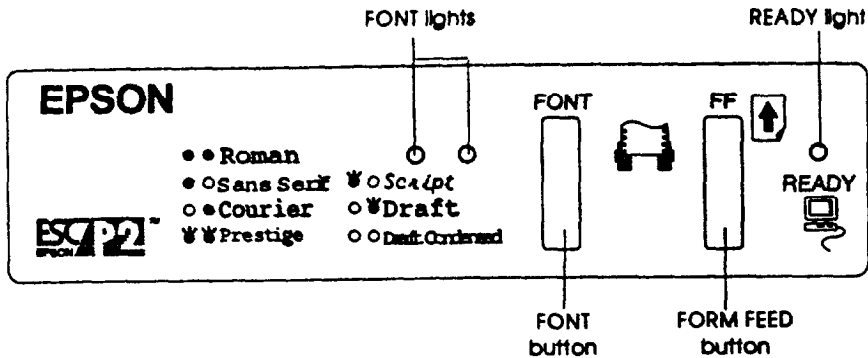
2. Press the FF button to advance the remaining labels out of the **p r i n t e r .**
3. **Make sure the paper-thickness lever is set to match the thickness of the paper you install next**

Using the Printer

Operating the Control Panel	3-2
Indicator Lights	3-2
Buttons	3-3
Other control-panel features	3-4
Selecting Character Fonts	3-5
Using the Default-Setting Mode	3-6
Changing the default settings	3-7
Default-setting features	3-11
Maintenance and Transportation	3-14
Cleaning the printer	3-14
Replacing the ribbon cartridge.	3-15
Transporting the printer	3-16
Troubleshooting	3-16
General problems	3-17
Printing problems	3-17
Color printing problems	3-22
Paper handling problems.	3-23

Operating the Control Panel

You can control the basic operations-form feed, paper loading and ejecting, and font selection-with the buttons on the control panel. The indicator lights help you monitor the printer's status.



Indicator lights

The control panel lights provide information on certain printer conditions and settings.

READY

The **READY** light is on when the printer is ready to receive data from the computer. The **READY** light flashes under these conditions:

- ☐ When you turn on the printer
- ☐ When the printer runs out of paper
- ☐ When the printer enters the tear-off mode (with the optional push tractor only)
- ☐ The print head is overheated. (In this case, the printer waits until the print head cools and then resumes printing.)

When an error occurs, the READY light goes off.

FONT

The two font lights indicate the current font setting. These lights change when you press the FONT button. Look at the font menu on the control panel to determine which font is selected. For instructions on selecting fonts with the FONT button, see page 3-5.

Buttons

The two buttons on the control panel perform different functions depending on the printer mode.

FONT

Press the FONT button to move through the font choices on the font menu. The two FONT indicator lights indicate the current selection. For more about choosing a font with this button, see page 3-5.

Hold down the FONT button while you turn on the printer to enter the default-setting mode. When you are in the default-setting mode, use this button to make your selection. For more information about the default-setting mode, see page 3-6.

FF (FORM FEED)

Press the FF button during normal operation to load a single sheet of paper or to advance continuous paper to the next top of form. You can also press FF to eject a page.

When you are in the default-setting mode, use this button to change the default settings. For more information about the default-setting mode, see page 3-6.

PAPER PARK

If you are using continuous paper, you can press the FF and FONT buttons at the same time to move the paper back to the paper-park position



Caution:

Never feed labels backward; they may peel off their backing sheet and damage the printer. Use the FF button to feed them forward.

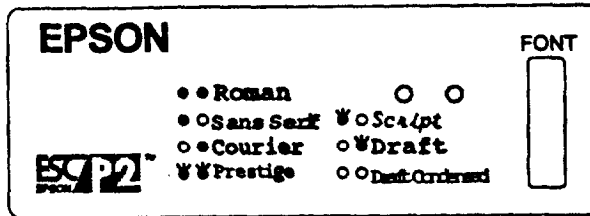
Other control-panel features

The control panel also gives you access to three special features:

- | | |
|---------------|--|
| Self Test | The self test lets you know if your printer is operating properly. To run the self test, see page 1-14. |
| Hex dump | The hex dump allows advanced users to pinpoint communications problems between the printer and computer. For instructions on running a hex dump, see page 3-13. |
| Demonstration | The demonstration page is a printout of text and type enhancements that shows you the unique capabilities of your printer. To print the demonstration page, see page 3-13. |

Selecting Character Fonts

To choose one of the resident fonts available with your printer, press the FONT button.



The two font lights come on (O), go off (O), and flash (O) to indicate the current selection. The table below lists the resident fonts and shows how the font lights appear for each selection.

Font	FONT Lights	Sample
Epson Roman	O O	
Epson Sans Serif	O ●	
Epson Courier	● O	
Epson Prestige	Ö Ö	
Epson Script	Ö ●	
Epson Draft	● Ö	
Draft condensed	● ●	

O on ● off Ö flashing

The Roman and Sans serif fonts can be scaled (or sized) from 8 to 32 points in 2-point increments, using your application software or ESC/P 2 commands. If you need information about controlling font size with your application software, see your software user's guide. For a list of printer commands available with this printer, see the Appendix.

Using the Default-Setting Mode

Your printer has internal settings that control such functions as top-of-form position and page length. These settings are called default settings because they take effect each time you turn on the printer.

For most users, the factory settings are best, but you can change these settings if necessary. The table below lists all the settings you can change; the next section tells you how to change them; and the last section describes each setting in detail.

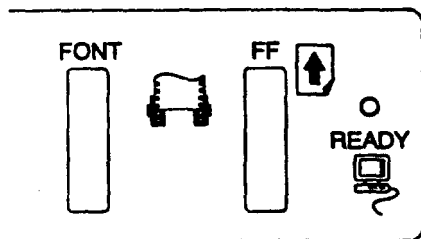
Setting	Options
Graphic print direction	Unidirectional or Bidirectional
Download	On or Off
Skip over perforation	On or Off
Tear-off position	On cutter, or Above cutter
Auto line feed	On or Off
Hex dump/demonstration	Hex dump or Demonstration
Character table	437, 850, 860, 863, 865, BRASCII, Abicomp, 861
Page length	11 in., 12 in., 8.5 in., or 70/6 in. (A4)
TOF position	-3, -2, -1, 0, +1, +2, or +3

Note

Most application programs control the printer settings listed here. If you can use your program to control the printer, you may never need to use the default-setting mode. In fact, you may find that your program settings override your printer's default settings. See your software documentation for more information.

Changing the default settings

If you need to change default settings that cannot be changed by using your software program, you press the control panel buttons, and the control panel lights show your selections.



Follow the steps below to make your changes:

Note:

You can repeat steps 5 **through 7 if you want** to make more *than one change*. Also, you can turn off the printer and start over if you are not sure about a setting.

1. Make sure the printer is turned off and paper is loaded in the paper cassette. If you installed the optional push tractor, you can use continuous paper for the default-setting *mode*.
2. To enter the default-setting mode, hold down the FONT button while you turn on the printer.

The printer automatically loads a sheet of paper and prints out instructions and a table showing you the languages from which you can choose. You can print the default-setting mode messages in English, French, German, Italian, or Spanish.

3. Press the FONT button until the FONT lights indicate the language of your choice; then press the FF button to make your selection.

FONT light	Language
● ○	English
● Ö	Français
○ ●	Deutsch
○ ○	Italiano
○ Ö	Español

○ on ● off Ö flashing

Once you press the FF button, the printer prints the current default settings and further instructions in the selected **language**. **After** printing is finished, go to the next **step**.

4. If you want more help text to be printed, press the FONT button. **After printing is finished, go to the next step.**

If you do not want to print additional help text, press the FF button and go to the next step immediately.

Note:

When you first use the default-setting mode, it is a good idea to press the FONT button to print the help text before changing default settings. The printed text guides you through the operation. Once you are familiar with the operation, press the FF button to skip printing.

5. **Use the following table to chose the setting you want to change. Then press the FONT button as many times as necessary until the FONT lights match your selection.**

Default-setting menu	FONT lights	STATUS READY light	
		On	Off
Graphic print direction	● ○	Bidirectional	Unidirectional
Download	● ●	On	Off
Skip over perforation	○ ●	On	Off
Tear-off position	○ ○	Above cutter	On cutter
Auto line feed	○ ●	On	Off
Hex dump/ demonstration	● ●	Demo.	Hex dump
Character table	● ○	Change*	No change*
Page length (for continuous paper)	● ●	Change*	No change*
TOF position	● ●	Change*	No change*

○ on ● off ● flash

See the following tables in this section.

For example, if you want to change the character table, press the FONT button until the left FONT light is flashing and the right FONT light is on.

6. Press the FF button to change the setting. The READY light turns on or off to show your selection, as indicated above. Your new setting is saved automatically and remains in effect until you change it

If you are changing the character table, page length, or TOF (top-of-form) position, go to step 7 next. Otherwise, go to step 8.

7. If you are changing the character table, page length, or TOF position, you must make additional changes as shown in the tables below. Press the FF button until the set of lights (the FONT lights and the READY light) indicate your selection. Then press the FONT button to set the setting.

Once you press the FONT button, the printer advances to the next item in the previous table and your setting is saved automatically. The new setting remains in effect until you change it.

Character table

FONT lights		READY light	Character table
Left	Right		
●	●	○	PC 437 (USA, standard Europe)
●	●	◐	PC 850 (Multilingual)
●	○	●	PC 860 (Portuguese)
●	○	○	PC 863 (Canadian French)
●	○	◐	PC 865 (Nordic)
●	◐	○	BRASCii (Brazilian Portuguese)
●	◐	◐	Abicomp (Brazilian Portuguese)
●	◐	●	PC 861 (Icelandic)

○ on ● off ◐ flashing

Page length

FONT lights		READY light	Page length
Left	Right		
●	●	○	11 inches
●	●	◐	12 inches
●	○	●	8.5 inches
●	○	○	70/6 inches (A4)

○ on ● off ◐ flashing

Top of form

FONT lights		READY light	Page length
Left	Right		
●	●	○	-3
●	●	◐	-2
●	○	●	-1
●	○	○	±0
●	○	◐	+1
●	◐	●	+2
●	◐	○	+3

○ on ● off ◐ flashing

8. Turn off the printer to exit the default-setting mode. Any changes you have made remain in effect until you change them again.

Default-setting features

Character table

Character tables contain the characters and symbols used in other languages. Your printer includes a wide variety of character tables.

You can choose from these options:

PC 437 (US)

PC 860 (Portuguese)

PC 865 (Nordic)

Abicomp (Brazilian
Portuguese)

PC 850 (Multilingual)

PC 863 (Canadian-French)

BRASCII (Brazilian Portuguese)

PC 861 (Icelandic)

For specific characters, see “Character Tables” in the Appendix.

Page length

This option is only available when you use continuous paper with the optional push tractor. You can set the page length to 8.5, 11, 12, or 70/6 (A4) inches.

Skip over perforation

When this option is set to on, the printer skips over the perforations of continuous paper so that it provides a 1-inch margin between the last line printed on one page and the first line printed on the next page. Since most application programs insert their own top and bottom margins, you should use this feature only if your program does not provide it. This feature is active only if you install the optional push tractor.

Tear-off position

When you use continuous paper with the optional push tractor, this feature advances the paper so you can tear off the printed page and then reverses the paper so you can use all of the next sheet. You can choose from two tear-off positions with this printer.

If you select On cutter, the printer feeds the paper perforation to the paper cutter on the edge of the printer cover. If you select Above cutter, the printer feeds the perforation about 25 mm (1 inch) beyond the printer cover.

TOF (top-of-form) position

Whenever you press the FF button or send the form feed command, the printer loads paper to the set top-of-form (TOF) position. The TOF position is factory set to the 0 position, which is 8.5 mm (0.33 inches) from the top edge of the paper. You can set this position from 5.5 mm (-3) to 11.5 mm (+3) in 1-mm increments.

Graphic print direction

You can choose unidirectional or bidirectional as the print direction for graphics. The printer usually prints text bidirectionally for fast printing and prints graphics unidirectionally for precise vertical alignment of print dots. To print graphics faster, select bidirectional printing. If you have installed the motor unit included with the color upgrade kit, make sure the printing direction is always unidirectional even when you are using the black ribbon.

Download

You must turn on the download function before you download fonts or other user-defined characters to the printer's memory. If you are not using user-defined characters, turn off download to increase the printer's memory capacity and the printing speed.

Auto line feed

When the auto line feed feature is on, each carriage return (CR) code is accompanied by a line feed (LF) code. If your printed text is unexpectedly double spaced, set this option off. If text lines print on top of each other, set it on.

Hex dump/Demonstration

The hex dump/demonstration feature lets you print a hexadecimal dump or a demonstration page. If you choose hex dump and then run an application program, the printer prints the exact codes (in hexadecimal format) it receives from the computer. You can analyze this information to isolate communication problems. If you select demonstration, the printer prints a page of text and font selections available with your printer.

Once you select hex dump or demonstration, turn off the printer and wait five seconds. To enter the hex dump mode or print your selection, hold down both the FF and FONT buttons while you turn on the printer.

Maintenance and Transportation

Cleaning the printer

To keep your printer operating at its best, you should clean it thoroughly several times a year.

1. Make Sure the printer is turned off. Then remove any paper as well as the paper cassette and output guide. Also remove the optional push tractor, if installed.
2. Use a soft brush to carefully brush away all dust and dirt.
3. If the outer case or paper cassette is dirty or dusty, clean it with a soft, clean cloth dampened with mild detergent. Keep the printer cover in place to prevent water from getting inside the printer.



Caution:

- ❑ *Never use alcohols or thinners to clean the printer; these chemicals can damage the components as well as the case.*
- ❑ *Do not use a hard or abrasive brush.*
- ❑ *Do not spray the inside of the printer with lubricants; unsuitable oils can damage the mechanism. Contact your dealer or a qualified service person if you think lubrication is needed.*
- ❑ *Be careful not to get water on the printer mechanism or electronic components.*

Replacing the ribbon cartridge

When the printing becomes faint, you need to replace the ribbon cartridge. Epson recommends the following ribbon cartridge:

so15060
so15061

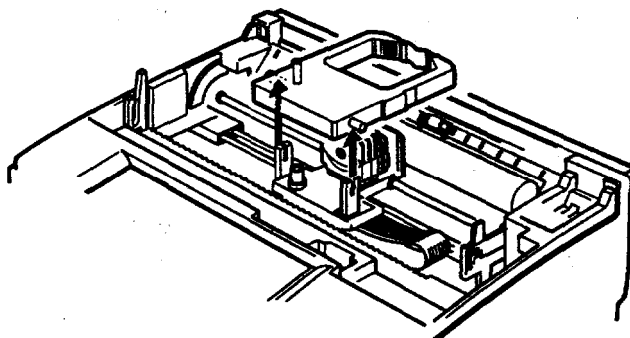
blackribbon cartridge
color ribbon cartridge



Caution:

If you have just used the printer, let the print head cool for a few minutes before you touch it.

To remove the old ribbon cartridge, first move the print head to the center of the printer. Then remove the cartridge by lifting the posts on either side of the unit.



To replace the ribbon cartridge, follow the steps in “Installing the Ribbon Cartridge” in Chapter 1.

Transporting the printer

If you need to transport your printer some distance, carefully repack it using the original box and packing materials as described below:

1. Turn off the printer.
2. Unplug the power cord from the electrical outlet; then disconnect the interface cable from the printer.
3. Remove the output guide.
4. Remove the optional push tractor, if installed.
5. Remove the ribbon cartridge.
6. Repack the printer, ribbon cartridge, output guide, and power cord in the original packing materials and place them in the printer's original box

Troubleshooting

Most problems you may encounter while operating your printer have simple solutions. Read this section if you have a printer problem.

You can check the operation of your printer using the self test. See “Running the Self Test” in Chapter 1. If the self test works properly, the problem probably lies in computer, the software, or the interface cable. If the self test does not work, contact your dealer or a qualified service person for assistance.

General problems

the lights on the control panel do not come on.

Check that **the power cord is properly plugged into the electrical outlet**

If the electrical outlet is controlled by an **outside switch or** automatic timer, use a different outlet.

Plug another electrical device into the outlet to determine whether the outlet is operating properly.

The lights come on briefly and then go off. The lights stay off even when the power is turned on again.

Check that the printer's voltage rating matches the voltage of your electrical outlet. If the voltages do not match, unplug the printer and contact your dealer immediately. Do not reconnect the power cord to an electrical outlet.

Printing problems

The READY light is on but nothing is printed.

Check that the software is installed properly for your printer. Check the software's printer settings.

Check both ends of the interface cable between the **printer and** the computer. Make sure this cable is **a shielded twisted-pair** parallel cable that meets both the printer and computer specifications.

The READY light is flashing and nothing is printed.

The printer may be **out of paper** **Load paper in the printer.**

The printer sounds like it is printing, but nothing is printed.

The ribbon cartridge may not be installed properly. See the section on ribbon **installation in Chapter 1.**

The ribbon may be worn out. Replace the ribbon cartridge as described earlier in this chapter.

The printer makes a strange noise, the beeper sounds several times, and the printer stops abruptly.

Turn off the printer and check for a paper jam, a ribbon jam, or other problems. If the printer still does not print correctly, contact your dealer.

The READY light is flashing, but the printer does not print or it stops printing abruptly.

The print head is overheated. Wait a few minutes; the printer resumes printing automatically when the print head cools.

The beeper sounds several times and the READY light goes off.

An error has occurred. Turn off the printer and turn it on again. If the READY says off, contact your dealer or qualified service person. (If an error occurs when you try to switch between single sheets and continuous paper, see page 3-25.)

Printed characters have parts missing at the **bottom**.

The ribbon cartridge may not be installed properly. See the section on ribbon installation in Chapter 1.

The printout has a smudged appearance.

You may be printing **at too high** a resolution. Select a lower resolution using your application software.

The printout is faint

The ribbon may be worn out. Replace the ribbon cartridge as described earlier in this chapter.

Check that the paper-thickness lever is set correctly for the paper you are using. See “Adjusting the paper-thickness lever” in chapter 2.

A line of dots is missing in the printout.

The print head is damaged. Stop printing and contact your dealer to replace it.

Dots are missing in random positions.

Either there is too much slack in the ribbon or the ribbon has come loose. Re-install the ribbon cartridge as described in Chapter 1.

The typestyles or characters you selected with your software are not printed

Check that the software is correctly configured for your printer.
For instructions, see Chapter 1.

The font selected on the control panel does not print.

Your software may be overriding your control panel setting.
Check the font sitting in your application program.

The wrong characters are printed

The wrong character table is selected. Check the default character table setting as described in "Changing the default settings" on page 3-7.

Printing starts too high or too low on the page, or the bottom part of one page is printed at the top of the next page.

Reduce or eliminate the top margin with your application software.

Use your application software to specify the type of paper you are using (single sheet or continuous) and to set the lines-per page setting. These settings take into account the different requirements of the two printing methods.

Change the TOF position in the default-setting mode. See "Changing the default settings" on page 3-7.

Also, it is possible to open the printer cover and turn the gear to make minor adjustments to the loading position for the current page only. See Chapter 2.

All the text is printed on the same line.

Set the auto line feed to on in the default-setting mode so the printer adds a line-feed code to each carriage return. See “Changing the default settings” on page 3-7.

The text is printed with extra blank lines between the lines of text

Two line-feed signals are being sent. Set the auto line feed to off in the default-setting mode. See “Changing the default settings” on page 3-7.

Line spacing is incorrect. Adjust the line-space setting in your application software.

Page length does not match the length of the paper.

Check the page length set by your application software and adjust it if necessary.

If you are using continuous paper, change the page length in the default-setting mode. See “Changing the default settings” on page 3-7.

Regular gaps occur in the printout.

One-inch skip over perforation may be set. Set the skip over perforation to off in the default-setting mode. See “Changing the default settings” on page 3-7.

Vertical printed lines do not align.

Set the graphic print direction to Unidirectional for unidirectional printing in the default-setting mode. For instructions, see “Changing the default settings” on page 3-7.

Note:

- ❑ *You can use hex dump mode to find the cause of communication problems. See page 3-13.*

If the printer still does not print correctly try the self test described in Chapter 1. If the self test works properly, the printer is all right and the problem probably lies in the computer, the software, or the cable. If the self test does not work, contact your dealer or a qualified service person.

Color printing problems

Characters are not printed during color printing.

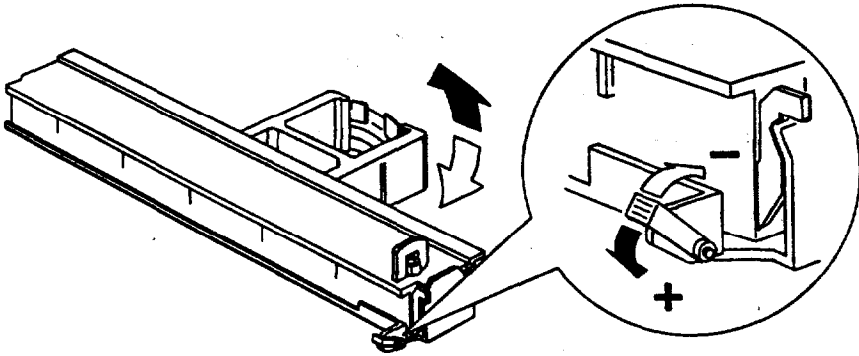
Your software program may not be properly set up for color printing. Use the program's setup (or install) procedure to check the printer setting and adjust as needed.

The desired color is not printed

The printing color may not be set correctly. If your application program is capable of sending control codes, select the color using the ESC r command (See the “Command Summary”).

The ribbon cartridge may may be installed properly. **Remove** the ribbon cartridge and reinstall it. See Chapter 1.

The color ribbon angle may need adjusting. Move the color ribbon adjustment lever to change the ribbon angle slightly as shown below:



Move the lever towards "+" to increase the angle, or towards "-" to decrease it.

The ribbon is too much slack, or the colors in the ribbon may be bleeding slightly at the color borders. Stop printing turn off the printer, and reinstall the ribbon cartridge. Printing may also be improved by adjusting the color ribbon adjustment lever as described above.

Paper handling problems

When the optional push tractor is installed, the platen does not rotate and paper does not feed

Check that the paper-release lever is set at the lower single-sheet position.

The platen rotates but paper does not feed and the READY light flashes.

The paper cassette is out of paper. Load paper in the cassette.

Paper feeding from the paper cassette is crooked or the paper jams.

Turn off the printer and pull out the paper. Remove the paper cassette and make sure the paper is properly loaded in the paper cassette.

Pages fed from the paper cassette do not fully eject.

Use the FF button to eject the pages.

Paper feeding from the manual insertion slot is crooked or the paper jams.

Turn off the printer and pull out the paper. Insert a new sheet straight into the paper slot. Make sure you are using the right type of paper. See the paper specifications in the Appendix.

The paper inserted through the manual insertion slot does not feed

Make sure the paper is far enough to the left

The paper fed from the manual insertion slot does not eject completely.

The paper may be too long. Only use paper that within the specified range. See the paper specifications in the Appendix.

When you send data or press the FF button, the push tractor does not feed the paper.

Check that the paper-release lever is in the raised, continuous-paper position

The paper has come off the push tractor. Reattach the paper to the push tractor.

Paper feeding from the push tractor is crooked or the paper jams.

The position of your paper supply may be preventing it from feeding straight. Make sure the paper supply is not obstructed by a cable or some other object.

Make sure that your paper supply is positioned within 1 meter (3 feet) of the printer.

Check that the holes on the sides of the paper are aligned with each other. Also, make sure the sprocket units are locked and their covers are closed.

Check that the paper-thickness lever is set correctly for the paper you are using. See “Adjusting the paper-thickness lever” in Chapter 2.

Check that the paper size and thickness are within the specified range. See the paper specifications in the Appendix.

The paper fed from the push tractor does not eject properly.

The page may be too long. Tear off the fresh supply of paper and eject the page from the printer. Use only paper that is within the specified length range described in the Appendix.

When you switch between single sheets and continuous paper, the beeper sounds several times and the READY light goes off.

You have tried to change the paper-release lever position while paper remained in the printer. Return the paper-release lever to the previous position and eject paper (or feed paper to the paper-park position). Then change the paper-release lever position.

Appendix

Technical Specifications	A-2
Printer specifications	A-2
Interface specifications	A-9
Command Summary	A-13
Using the command summary	A-13
General operation	A-13
Paper feeding	A-13
Page format	A-14
Print position motion	A-15
Font selection	A-16
Font enhancement	A-17
Spacing.	A-18
Character handling	A-19
Bit image	A-21
Graphics	A-21
Color printing	A-22
Character Tables	A-23



Technical Specifications

Printer specifications

Printing

Printing method: **24-pin impact dot matrix**

Printing speed:

Quality	Charactors per Inch	Charactors/second/line*
Draft	10	180
	12	216
Letter Quality	10	66
	12	79

- The paper-thickness lever position or an overheated print bad may slow down the printing speed.

Printing direction: Bidirectional logic-seeking for text and graphics. (Unidirectional for graphics can be selected with the default-setting mode or the proper software command.)

Line spacing: 1/6inch, 1/8inch, or programmable in 1/36-inch increments

Paper feed speed: 111 ms per 1/64-inch line; 2.2 inches/second with continuous feed and the paper thickness lever position set to 0.

Input buffer: 11 KB when download default setting is OFF
1.75 KB when the download default setting is ON

Color printing (optional): Method: Shifting the print ribbon
Color(s): Black, Magenta, Cyan, and Yellow

Printable columns:

Character sizes	Maximum printed characters
10 cpl	80
10 cpl condensed	137
12 cpl	96
12 cpl condensed	160
15 cpl	120

Character fonts:

Font	10 cpl	12 cpl	15 cpl	Proportional
Epson Draft	○	○	○	
Epson Roman	○	○	○	○
Epson Sans Serif	○	○	○	○
Epson Courier	○	○	○	
Epson Prestige	○	○		
Epson Script	○	○		

You can also select other font/pitch combinations using ESC/P2 commands. See the command summary later in this Appendix for details.

Scalable fonts:

Font	Min pt	Max pt	Increments
Epson Roman	8	32	2 pt
Epson Sans Serif	8	32	2 pt
Epson Roman T	8	32	2pt
Epson Sans Serif H	8	32	2pt

Character tables:

One italic and 8 graphics character tables

Character sets:

14 international character sets and one legal character set

Paper

Single sheets (Paper cassette):

Size	Letter (85 x 11 inches) or A4 (210 x 297 mm)
Thickness	0.065 to 0.14 mm (0.0025 to 0.0055 inches)
Weight	64 to 90 g/m ² (17 to 24 lb)
Quantity	50 sheets

Single sheets (Manual insertion):

Width	148 to 257 mm (5.8 to 10.1 inches)
Length	92 to 364 mm (3.6 to 14.3 inches)
Thickness	0.065 to 0.14 mm (0.0025 to 0.0055 inches)
Weight	52 to 90 g/m ² (14 to 24 lb)

Continuous paper:

Width	101.6 to 254 mm (4 to 10 inches)
Copies	Two sheets (one original plus one copy)
Thickness	0.065 to 0.10 mm (0.0025 to 0.0039 inches) for one sheet 0.065 to 0.18 mm (0.0025 to 0.0071 inches) total.

weight 52 to 82 g/m² (14 to 22 lb) for one sheet
40 to 58g/m²(12 to 15 lb)persheetin
multi-part forms

- ☐ Use only carbonless multi-part forms and use them only with the optional push tractor.

Note:

You can use recycled paper with this printer under normal temperature conditions; however, you may notice an increase in ribbon consumption and paper jamming. If this occurs, use a higher grade of paper. Recycled paper and 24 lb paper are recommended for use under the conditions from 15°C to 25°C and from 20% to 60% RH.

Labels:

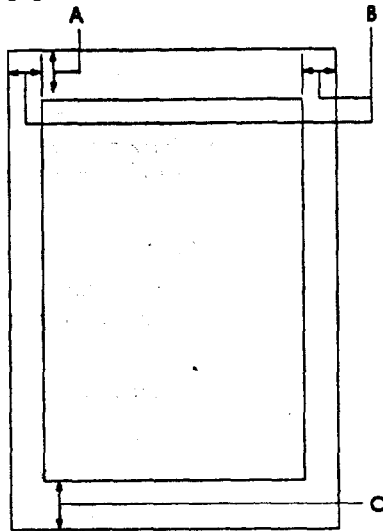
<i>Size</i>	102 to 254 (4 to 10 inches) width for backing sheet 635 x 23.8 mm (2 1/2 x 15/16 inches) minimum for a label
<i>Thickness</i>	0.07 to 0.09 mm (0.0028 to 0.0035 inches) for backing sheet 0.16 to 0.19 mm (0.0063 to 0.0075 inches) total
<i>Weight</i>	64 g/m² (17 lb) <input type="checkbox"/> Use continuous type labels only with the optional push tractor. <input type="checkbox"/> Use labels only under normal temperature and humidity conditions.

Envelopes:

<i>Size</i>	No. 6: 166 x 92 mm (6.5 x 3.6 inches) No. 10: 240 x 104 mm (9.5 x 4.1 inches)
<i>Thickness</i>	0.16 to 0.48 mm (0.0063 to 0.0189 inches)
<i>Weight</i>	45 to 75 g/m² (12 to 20 lb) <input type="checkbox"/> Use envelopes only under normal temperature and humidity conditions. <input type="checkbox"/> Load envelopes with the longer side inserted into the rear slot by manual insertion only.

Printable area:

Single sheets (paper cassette and manual insertion) and envelopes



A The minimum top margin is 5.3 mm (0.2 inches).

B The minimum left margin is 3 mm (0.12 inches).

The minimum right margin is:

3.8 mm (0.15 Inches) for the A4-size paper cassette

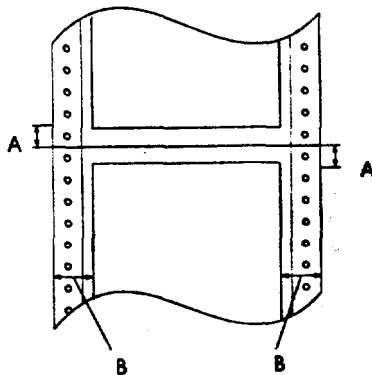
9.7 mm (0.38 Inches) for the letter-size paper cassette

3 mm (0.12 inches) for the manual Insertion slot

However, the maximum printable width 203 mm (8 inches).

C The minimum bottom margin is 9.0 mm (0.35 Inches).

Continuous paper



- A The minimum top and bottom margins above and below the perforation are 9 mm (0.35 Inches).
- B The minimum left and right margins are 13 mm (0.51 inches). However, the maximum printable width is 203 mm (8 inches).

Mechanical

Paper-feed methods:

Friction (the paper cassette and manual insertion)

Push tractor (optional)

Ribbon:

Blade ribbon cartridge S015060

Life expectancy: 2 million characters at 48 dots per character

Color ribbon cartridge SS015061

Life expectancy: (at 48 dots per character)

Black 1 million characters

Magenta. Cyan 0.7 million characters

Yellow 05 million characters

MTBF:

4000 power-on hours (10% duty)

Print head life:

200 million strokes/wire (using the black ribbon cartridge)

100 million strokes/wire (using the color ribbon cartridge)

Dimensions and weight:	Height	130 mm (5.1 inches)
	Width	375 mm (14.8 inches)
	Depth	252 mm (9.9 inches)
	Weight	45 kg (10 lb)

Electrical

120 V model:

Rated voltage:	AC 120 V
Input voltage range:	AC 103.5 to 132 V
Rated frequency range:	50 to 60 Hz
Input frequency range:	49.5 to 60.5 Hz
Rated current:	1.4 A
Power consumption:	Approx 30 W (during self-test printing in draft mode at 10 cpi)

230 V model:

Rated voltage:	AC 220 V-240 V
Input voltage range:	AC 198 to 261 V
Rated frequency range:	50 to 60 Hz
Rated current:	49.5 to 60.5 Hz
	0.7 A
Power consumption:	Approx. 30 W (during self-test printing in draft mode at 10 cpi)

Note:

Check the label on the back of the printer for the voltage of your printer.

Environmental

Temperature

Operation:	5° to 35°C (41° to 95°F)
Operation (envelopes, labels, or recycled paper):	15° to 25°C
Storage:	-20° to 55°C (-4° to 131°F)

Humidity (without condensation):

Operation:	5% to 80% RH without condensation
Operation (envelopes, labels, or recycled paper):	20% to 60% RH
Storage:	5% to 85% RH without condensation

Safety approvals

Safety standards:

US model:	UL1950 with D3, CSA22.2 No.950 with D3
European model:	EN 60950 (TUV), IEC 950 (SEMKO, DEMKO, NEMKO, SETI)

R.F.I.

US model:	FCC part 15 subpart B class B
European model:	Vfg243 VvDE0878 part 3, part 30), EN55022 (CISPR PUB22) class B

Interface specifications

Your printer is equipped with an 8-bit parallel interface.

Specifications and pin assignments

The built-in parallel interface has the following characteristics:

Data format:	8-bit parallel
Synchronization:	$\overline{\text{STROBE}}$ pulse
Handshake timing:	BUSY and $\overline{\text{ACKNLG}}$ signals
Signal level:	TTL compatible
Connectors	36-pin 57-30360 Amphenol connector or equivalent

The table below provides the connector pin assignments and describes their respective interface signals.

Signal pin	Return pin	Signal	Direction	Description
1	19	<u>STROBE</u>	IN	<u>STROBE</u> pulse to read data. Pulse width must be more than 0.5 μ s at the receiving terminal.
2	20	DATA 1	IN	These signals represent information of the 1st to 8th bits of parallel data, respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
3	21	DATA 2	IN	
4	22	DATA 3	IN	
5	23	DATA 4	IN	
6	24	DATA 5	IN	
7	25	DATA 6	IN	
8	26	DATA 7	IN	
9	27	DATA 8	IN	
10	28	<u>ACKNLG</u>	OUT	About a 10 μ s pulse. LOW indicates that data has been received and that the printer is ready to accept more data.
11	29	BUSY	OUT	A HIGH signal indicates that the printer cannot receive data. The signal goes HIGH in the following cases: 1) During data entry (ea. char. time) 2) During printing 3) During an error state.
12	30	PE	OUT	A HIGH signal indicates that the printer is out of paper.
13	—	SLCT	OUT	Pulled up to 5V through 3.3 K Ω resistance.
14	—	<u>AUTO FEED XT</u>	IN	When this signal is LOW, the paper is automatically fed one line after printing. (The signal level can be fixed to this by setting Auto Line Feed on in the default-setting mode.)
15	—	NC	—	Not used.
16	—	GND	—	Logic ground level.

Signal pin	Return pin	Signal	Direction	Description
17	—	CHASSIS GND	—	Printer's chassis ground, which is isolated from the logic ground.
18	—	NC	—	Not used.
19-30	—	GND	—	Twisted-pair return signal ground level.
31	16	$\overline{\text{INIT}}$	IN	When this level becomes LOW, the printer controller is reset to its power-up state and the print buffer is cleared. This level is normally HIGH; its pulse width must be more than 50 μs at the receiving terminal.
32	—	$\overline{\text{ERROR}}$	OUT	This level becomes LOW when the printer is: 1) in a paper-out state 2) in an error state.
33	—	GND	—	Same as for pins 19-30.
34	—	NC	—	Not used.
35	—	+5V	OUT	Pulled up to 5V through 3.3 k Ω resistance.
36	—	NC	—	Not used.

Note:

- ☐ The column heading "Direction" refers to the direction of signal flow as viewed from the printer.
- ☐ "Return" denotes the twisted-pair return, to be connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.
- ☐ All interface conditions are based on the TTL level. Both the rise and fall times of each signal must be less than 0.2 μs .
- ☐ *Data transfer must be carried out by observing the ACKNLG or BUSY signal. Data transfer to this printer can be carried out only after receipt of the ACKNLG signal or when the BUSY signal is LOW.*

Initialization

The printer can be initialized (returned to a fixed set of conditions) in three ways:

Hardware Initialization	The power is turned on. The printer receives an INIT signal from the parallel interface (pin 31 goes LOW).
Software Initialization	Software sends the ESC @ (initialize the printer) command.

Default settings

The table below shows the default settings that become valid when the printer is initiated.

Item	Default setting
Top-of-form position	Current paper position or setting in the default-setting mode.
Page length	Single sheets: 65 lines for A4-size paper, 61 lines for letter-size paper, 22 inches for manual insertion Continuous paper: Subject to control panel setting in the default-setting mode
Left and right margins	Cancelled
Line spacing	1/6-inch line spacing
Character size	10.5 point
Horizontal tab positions	Every eight characters
Font selection	Last font selected on control panel
Special printing effects	Cancelled (except condensed printing)
Download character set	Hardware initialization: cleared Software initialization: deselected only

In addition, hardware initialization clears the data buffer.

Command Summary

Using the command summary

The following section lists and describes all the ESC/P 2 commands by topic. If a command has no parameters, it is merely listed. If it has parameters, they are explained. The parameters are indicated by lowercase italicized letters, usually *n*. The examples below show how the parameters are indicated.

ESC @ is a command with no parameters.

ESC U 1/0 is a command that uses 1 to turn the feature on and 0 to turn it off.

ESC \$ n1 n2 is a command with two parameters.

ESC D nn is a command with a variable number of parameters.

General operation

ASCII	Dec.	Hex.	Description
ESC @	64	40	Initialize Printer
ESC U 1/0	85	55	Turn Unidirectional Mode On/Off
ESC EM <i>n</i>	25	19	Control Paper Loading/Ejecting <i>n</i> = "R" Eject a sheet

Paper feeding

ASCII	Dec.	Hex.	Description
CR	13	0D	Carriage Return
FF	12	0C	Form Feed
LF	10	0A	Line Feed
ESC 0	48	30	Select 1/8-inch Line Spacing
ESC 2	50	32	Select 1 / 6-inch Line Spacing
ESC 3 <i>n</i>	51	33	Set <i>n</i> / 180-inch Line Spacing
ESC + <i>n</i>	43	2B	Set <i>n</i> /360-inch Line Spacing

Page format

ASCII	Dec.	Hex.	Description
ESC (c nn	40 99 28 63		Set Page Format ESC (c 40 m1 m2 n1 n2 $m = m1 + m2 \times 256$ m: Top margin in defined units $n = n1 + n2 \times 256$ n: Bottom margin in defined units Set Page Length in Defined Unit
ESC (C nn	40 67 28 43		ESC (C 20 n1 n2 $n = n1 + n2 \times 256$ n: Number of defined units
ESC C n	67	43	Set Page Length in Lines n = Number of lines (1-127)
ASCII	Dec.	Hex.	Description
ESC C 0 n	67	43	Set Page Length in Inches n = Number of inches (1-22)
ESC N n	78	4E	Set Bottom Margin for Continuous Paper n = Number of lines (1-127)
ESC O	79	4F	Cancel Top/Bottom Margin for Continuous Paper
ESC 1 n	108	6C	Set Left Margin n = Left margin column
ESC Q n	81	51	Set Right Margin n = Right margin column

Print position motion

ASCII	Dec.	Hex.	Description
ESC \$ <i>n1 n2</i>	36	24	<p>Set Absolute Horizontal Print Position $n = n1 + n2 \times 256$ <i>n</i>: Specifies print position from left margin in defined units</p> <p>❑ Before you define the unit, the default is 1/60-inch for this command.</p>
ESC \ <i>n1 n2</i>	92	5C	<p>Set Relative Horizontal Print Position $n = n1 + n2 \times 256$ <i>n</i>: Moves current print position in defined units</p> <p>❑ Before you define the unit, the default is 1/120-inch in draft and 1/180-inch in LQ for this command.</p>
ESC (V <i>nn</i>	40 86	28 56	<p>Set Absolute Vertical Print Position ESC (V 2 0 <i>n1 n2</i> $n = n1 + n2 \times 256$ <i>n</i>: Specifies print position from top margin in defined units</p>
ESC (v <i>nn</i>	40 118	28 76	<p>Set Relative Vertical Print Position ESC (v 2 0 <i>n1 n2</i> $n = n1 + n2 \times 256$ <i>n</i>: Moves current print position in defined units</p>
ESC D <i>nn</i> ,	6 8	4 4	<p>Set Horizontal Tabs Up to 32 tabs (1-255) entered in ascending order Terminated by 0</p>
HT	9	09	Tab Horizontally
ESC B <i>nn</i>	66	42	<p>Set Vertical Tabs Up to 16 tabs (1-255); last <i>n</i> should be 0</p>
VT	11	0B	Tab Vertically
ESC J <i>n</i>	74	4A	Advance $n/180$ -inch

Font selection

ASCII	Dec.	Hex.	Description
ESC k <i>n</i>	107	6 B	Select Typeface <i>n</i> = 0: Roman 4: Script 1: San Serif 10: Roman T 2: <i>courier</i> 11: Sans Serif H 3: Prestige
ESC X <i>nn</i>	88	58	Select Font by Pitch and Point ESC X <i>m n1 n2</i> <i>m</i> : Set pitch to 360/ <i>m</i> cpi <i>m</i> = 0 : No change in pitch <i>m</i> = 1 : Select proportional <i>m</i> = 0, 1, 18, 21, 24, 30, 36, 42, 48, 60, or 72 <i>n</i> = <i>n1</i> + <i>n2</i> x 256 <i>n</i> : Set point size in 0.5 points Total points = (<i>n1</i> + <i>n2</i> x 256) x 0.5 <i>n</i> = 0 : No change in point <i>n</i> = 0, 16, 21, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, or 64 (for Roman and Sans Serif) <i>n</i> = 0, 21, 42 (for other typeface) Cancel ESC X with ESC P, M g, p, !, or @
ESC P	80	50	Select 10.5 point, 10 cpi
ESC M	77	4 D	Select 10.5 point, 12 cpi
ESC g	103	67	Select 10.5 point, 15 cpi
ESC p 1/0	112	70	Turn Proportional Mode On/Off
ESC x <i>n</i>	120	78	Select Letter Quality or Draft <i>n</i> = 0: Draft 1: Letter Quality
ESC 4	52	34	Select Italic Font
ESC 5	53	35	Cancel Italic Font
ESC E	69	45	Select Bold Font
ESC F	70	46	Cancel Bold Font

ASCII	DOG.	Hex.	Description
ESC ! <i>n</i>	33	21	Master Select To find the value of <i>n</i> , add together the numbers of the typstyles you want to combine from the list below: <i>n</i> = 0: 10 cpi 16: Double-strike 1: 12 cpi 32: Double-width 2: Proportional 64: Italic 4: Condensed 128: Underline 8: Bold

Font enhancement

ASCII	Dec.	Hex.	Description
SI	15	0 F	Select Condensed Printing
DC2	18	12	Cancel Condensed Printing
SO	14	0E	Select Double-Width Printing (one line)
ESC W1/0	w	57	Turn Double-Width Printing On/Off
DC4	20	14	Cancel Double-Width Printing (one line)
ESC w1/0	119	77	Turn Double-Height Printing On / Off
ESC G	71	47	Select Double-Strike Printing
ESC H	72	48	Cancel Double-Strike Printing
ESC S 0	83	53	Select Superscript Printing
ESC S 1	83	53	Select Subscript Printing
ESC T	84	54	Cancel Superscript/Subscript Printing
ESC (- <i>nn</i>	40 45	28 2D	Select Line/Score ESC (- 3 0 1 <i>n1 n2</i> <i>n1</i> = 1: Underline 2: Strikethrough 3: Overscore <i>n2</i> = 0: Cancel score line selected by <i>n1</i> 1: Single continuous line 2: Double continuous line 5: Single broken line 6: Double broken line

ASCII	Dec.	Hex.	Description
ESC - 1/0	45	2D	Turn Underline On/Off
ESC q n	113	71	Select Character Style <i>n</i> = 0: Normal style 1: Outline 2: Shadow 3: Outline with shadow

Spacing

ASCII	Dec.	Hex.	Description
ESC SP <i>n</i>	32	2 0	Set Intercharacter Space <i>n</i> = Number of units of space added to the space between characters (1 - 1 2 7) Units are 1/120 inch (draft) and 1/180 inch (LQ and proportional)
ESC (U <i>nm</i>	40 85	28 55	Define Unit ESC (U 1 0 <i>n</i> Define positioning unit as <i>n</i> /3600 inch <i>n</i> = 10, 20, 30, 40, 50, or 60 <i>n</i> = 10: default
ESC c <i>n1 n2</i>	9 9	6 3	Set Horizontal Motion Index (HMI) Select Pitch in <i>n</i> / 360-inch units Total units = <i>n1</i> + <i>n2</i> x 256

Character handling

ASCII	Dec.	Hex.	Description
ESC (t <i>nn</i>	40 116 28 74		Assign Character Table ESC (t 3 0 <i>d1 d2 d3</i> Assign Character Table set by <i>d2</i> and <i>d3</i> to table <i>d1</i> <i>d1</i> = 0, 1, 2, 3, "0", "1", "2", or "3" <i>d2 d3</i> Character Table 0 0 Italic 1 0 PC 437 (USA) 3 0 PC 850 (Multilingual) 7 0 PC 860 (Portuguese) 8 0 PC 863 (Canada-French) 24 0 PC 861 (Icelandic) 25 0 BRASCII (Brazilian Portuguese 26 0 Abicomp (Brazilian P o r t u g u e s e)
ESC t <i>n</i>	116	74	Select Character Table Select character table <i>n</i> assigned by ESC (t <i>n</i> = 0, 1, 2, 3, "1", "2", or "3" <i>n</i> = 2: Remaps download characters from 0-127 to 128-255
ESC R <i>n</i>	82	53	Select an International Character Set <i>n</i> = 0 : USA 8 : Japan 1 : France 9 : Norway 2 : Germany 10 : Denmark II 3 : UK 11 : Spain II 4 : Denmark I 12 : Lafin America 5 : Sweden 13 : Korea 6 : Italy 64 : Legal 7 : Spain I

ASCII	Dec.	Hex.	Description
ESC & <i>nn</i>	38	2 6	Define User-defined Character ESC & 0 <i>n1 n2 d0 d1 d2</i> data <i>n1</i> = First character number <i>n2</i> = Last Character number <i>d0</i> = Left Space of character <i>d1</i> = Body width of character <i>d2</i> = Right space of character data: 3 bytes required for each column; super/subscripts require only 2 bytes per column
ESC : 0 <i>n</i> 0	58	3 A	Copy ROM to RAM <i>n</i> = 0, 1, 2, 3, 4, 5, 6, or 9 <i>n</i> : Typeface
ESC % <i>n</i>	37	25	Select User-defined Set <i>n</i> = 0: Normal set 1: User-defined set
ESC 6	54	36	Enable Printing of Upper Control Codes With Extended Graphics this command enables the printing of codes 128-159
ESC 7	55	37	Enable Upper Control Codes Cancels ESC 6
ESC (^ <i>nn</i>	40 94 28 5E		Print Data as Characters ESC (^ <i>n1 n2</i> data <i>n</i> = <i>n1</i> + <i>n2</i> x 256 <i>n</i> : Amount of data data: The following <i>n</i> bytes of data printed as characters

Bit image

ASCII	Dec.	Hex.	Description
ESC * <i>nn</i>	42	2A	Select Bit Image ESC * <i>m n1 n2</i> data $n = n1 + n2 \times 256$ <i>n</i> : Total columns Total data = $(n1 + n2 \times 256) \times t$ <i>t</i> = Number of data bytes per column

mW 01	Horizontal density (dpl)	Vertical density (dpl)	Plns	Adjacent dots printing	t w a
0	60	60	8	enabled	1
1	120	60	8	enabled	1
2	120	60	8	disabled	1
3	240	60	8	d i s a b l e d	1
4	80	60	8	enabled	1
6	90	60	8	enabled	1
32	60	180	24	enabled	3
33	120	180	24	enabled	3
38	90	180	24	enabled	3
39	180	180	24	enabled	3
40	360	180	24	disabled	3

Graphics

ASCII	Dec.	Hex.	Description
ESC (G <i>nn</i>	40 71 28 47		Select Graphics Mode ESC (G 1 0 <i>n</i> $n = 1 \text{ or } 49$ <input type="checkbox"/> Cancel Graphics mode with ESC @

ASCII	Dec.	Hex.	Description
ESC . <i>nm</i>	46	2E	Print Raster Graphics ESC . <i>c v h m n1 n2</i> data c = 0: Full graphics mode 1: Compressed mode v = 10, 20: Dot density for vertical in 3600/v DPI h = 10, 20: Dot density for horizontal in 3600/ h DPI m: Number of vertical dots $1 \leq m \leq 256$ n : Number of horizontal dots Total dots $n = n1 + n2 \times 256$ <input type="checkbox"/> The following combination is not allowed: $v=10$ and $h = 20$

Note:

When printing with the color ribbon cartridge, the printer does not recognize the 360 dpi vertical data (TO BE CONFORMED; the specifications are unclear now)

Color printing

ASCII	Dec.	Hex.	Description
ESC r <i>n</i>	114	72	Select printing color The variable <i>n</i> selects the printing color according to the table below. 0: Black 4: Yellow 1: Magenta 5: Red 2: Cyan 6: Green 3: Violet

Character Tables

These character tables are selected with the default setting mode or by using a software command. All the tables are the same for hex codes 00 through 7F. Therefore, only first table is shown completely. The rest of the tables show only the characters for hex codes 80 through FF.

For all character tables except the italic character table, the ESC 6 and ESC 7 software commands let you select whether hex codes 80 to 9F are characters (ESC 6) or control codes (ESC 7).

The tables with an * after the table name are available in the European version only.

PC 437 (USA, standard Europe)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	NUL			0	@	P	`	p	Ç	É	á			ı	ı	α	≡
1			!	1	A	Q	a	q	ü	æ	í			ı	ı	β	±
2		DC2	"	2	B	R	b	r	é	Æ	ó			ı	ı	Γ	≥
3			#	3	C	S	c	s	à	ø	ú			ı	ı	π	≤
4		DC4	\$	4	D	T	d	t	ä	ö	ñ			ı	ı	Σ	ı
5		S	%	5	E	U	e	u	â	ò	ñ			ı	ı	σ	ı
6			&	6	F	V	f	v	ç	ù	â			ı	ı	μ	ı
7			'	7	G	W	g	w	ç	ù	â			ı	ı	τ	ı
8			(	8	H	X	h	x	è	ý	ı			ı	ı	ø	ı
9	HT	EM	)	9	I	Y	i	y	ë	Ö	ı			ı	ı	θ	ı
A	LF		*	:	J	Z	j	z	è	Ü	ı			ı	ı	Ω	ı
B	VT	ESC	+	;	K	[	k	{	ı	ı	ı			ı	ı	δ	ı
C	FF		,	<	L	\	l	}	ı	ı	ı			ı	ı	ø	ı
D	CR		-	=	M	]	m	~	ı	ı	ı			ı	ı	ø	ı
E	SO		.	>	N	^	n	~	ı	ı	ı			ı	ı	ø	ı
F	SI		/	?	O	_	o	~	ı	ı	ı			ı	ı	ø	ı

CODE	8	9	A	B	C	D	E	F
0	Ç	È	Á	•••••	•	•	•	•
1	Ü	É	Â	•••••	•	•	•	•
2	Ê	Ê	Ó	•••••	•	•	•	•
3	Ä	Ö	Ô	•••••	•	•	•	•
4	Å	Ö	Ë	•••••	•	•	•	•
5	À	Ò	Ñ	•••••	•	•	•	•
6	Ä	Ù	Ä	•••••	•	•	•	•
7	Ç	Û	Ö	•••••	•	•	•	•
8	Ç	Û	Ö	•••••	•	•	•	•
9	È	Ö	•	•	•	•	•	•
A	È	Ö	•	•	•	•	•	•
B	Ï	•	•	•	•	•	•	•
C	Ï	•	•	•	•	•	•	•
D	Ï	•	•	•	•	•	•	•
E	Ï	•	•	•	•	•	•	•
F	Ï	•	•	•	•	•	•	•

CODE	8	9	A	B	C	D	E	F
0	Ç	È	Á	•••••	•	•	•	•
1	Ü	É	Â	•••••	•	•	•	•
2	Ê	Ê	Ó	•••••	•	•	•	•
3	Ä	Ö	Ô	•••••	•	•	•	•
4	Å	Ö	Ë	•••••	•	•	•	•
5	À	Ò	Ñ	•••••	•	•	•	•
6	Ä	Ù	Ä	•••••	•	•	•	•
7	Ç	Û	Ö	•••••	•	•	•	•
8	Ç	Û	Ö	•••••	•	•	•	•
9	È	Ö	•	•	•	•	•	•
A	È	Ö	•	•	•	•	•	•
B	Ï	•	•	•	•	•	•	•
C	Ï	•	•	•	•	•	•	•
D	Ï	•	•	•	•	•	•	•
E	Ï	•	•	•	•	•	•	•
F	Ï	•	•	•	•	•	•	•

PC 863 (Canadian-French)

PC 865 (Nordic)

CODE	8	9	A	B	C	D	E	F
0	Ç	È	Á	•••••	•	•	•	•
1	Ü	É	Â	•••••	•	•	•	•
2	Ê	Ê	Ó	•••••	•	•	•	•
3	Ä	Ö	Ô	•••••	•	•	•	•
4	Å	Ö	Ë	•••••	•	•	•	•
5	À	Ò	Ñ	•••••	•	•	•	•
6	Ä	Ù	Ä	•••••	•	•	•	•
7	Ç	Û	Ö	•••••	•	•	•	•
8	Ç	Û	Ö	•••••	•	•	•	•
9	È	Ö	•	•	•	•	•	•
A	È	Ö	•	•	•	•	•	•
B	Ï	•	•	•	•	•	•	•
C	Ï	•	•	•	•	•	•	•
D	Ï	•	•	•	•	•	•	•
E	Ï	•	•	•	•	•	•	•
F	Ï	•	•	•	•	•	•	•

CODE	8	9	A	B	C	D	E	F
0	Ç	È	Á	•••••	•	•	•	•
1	Ü	É	Â	•••••	•	•	•	•
2	Ê	Ê	Ó	•••••	•	•	•	•
3	Ä	Ö	Ô	•••••	•	•	•	•
4	Å	Ö	Ë	•••••	•	•	•	•
5	À	Ò	Ñ	•••••	•	•	•	•
6	Ä	Ù	Ä	•••••	•	•	•	•
7	Ç	Û	Ö	•••••	•	•	•	•
8	Ç	Û	Ö	•••••	•	•	•	•
9	È	Ö	•	•	•	•	•	•
A	È	Ö	•	•	•	•	•	•
B	Ï	•	•	•	•	•	•	•
C	Ï	•	•	•	•	•	•	•
D	Ï	•	•	•	•	•	•	•
E	Ï	•	•	•	•	•	•	•
F	Ï	•	•	•	•	•	•	•

BRASCI (Brazilian Portuguese)

Abicomp (Brazilian Portuguese)

CODE	8	9	A	B	C	D	E	F
0	NUL			•	À	Ð	à	ð
1			¡	±	Á	Ñ	á	ñ
2		DC2	¢	²	Â	Ô	â	ô
3			£	³	Ã	Õ	ã	õ
4		DC4	¤	´	Ä	Ö	ä	ö
5			¥	µ	Å	Ø	å	ø
6			¦	¶	Æ	Ù	æ	ù
7			§	·	Ç	Ú	ç	ú
8			¨	¸	È	Û	è	û
9	HT	EM	©	¹	É	Ü	é	ü
A	LF		ª	º	Ê	Ý	ê	ý
B	VT	ESC	«	»	Ë	Þ	ë	þ
C	FF		¬	¼	Ì	Û	ì	ü
D	CR		­	½	Í	Ý	í	ý
E	SO		®	½	Î	Þ	î	þ
F	SI		¯	¾	Ï	ß	ï	ÿ

CODE	8	9	A	B	C	D	E	F
0	NUL			Ò	ì	ò		
1			À	Ó	à	ó		
2		DC2	Á	Ô	á	ô		
3			Â	Õ	â	õ		
4		DC4	Ã	Ö	ã	ö		
5			Ä	Ø	ä	ø		
6			Å	Ù	å	ø		
7			Ç	Ú	ç	ú		
8			È	Û	è	û		
9			É	Ü	é	ü		
A	HT	EM	Ê	Ý	ê	ý		
B	LF		Ë	Þ	ë	þ		
C	VT	ESC	Ì	»	ì	ü	ß	
D	FF		Í	¼	í	ý	à	
E	CR		Î	½	î	þ	á	
F	SO		Ï	¾	ï	ÿ	â	
	SI		Ñ	·	ñ	±	DEL	

CODE	8	9	A	B	C	D	E	F
0	Ç	È	É	Ê	Ë	Ì	Í	Î
1	Ï	Ð	Ñ	Ò	Ó	Ô	Õ	Ö
2	×	Ø	Ù	Ú	Û	Ü	Ý	Þ
3	ß	à	á	â	ã	ä	å	æ
4	ç	ð	é	ê	ë	ì	í	î
5	ï	ð	í	î	ï	ð	é	ê
6	ë	ì	í	î	ï	ð	é	ê
7	ç	ý	ÿ	¸	¹	º	»	¼
8	¸	¹	º	»	¼	½	¾	¿
9	¸	¹	º	»	¼	½	¾	¿
A	¸	¹	º	»	¼	½	¾	¿
B	¸	¹	º	»	¼	½	¾	¿
C	¸	¹	º	»	¼	½	¾	¿
D	¸	¹	º	»	¼	½	¾	¿
E	¸	¹	º	»	¼	½	¾	¿
F	¸	¹	º	»	¼	½	¾	¿

Italic

CODE	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p
1			!	1	A	Q	a	q
2		DC2	"	2	B	R	b	r
3			#	3	C	S	c	s
4		DC4	\$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF		*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF		,	<	L	\	l	|
D	CR		-	=	M	]	m	}
E	SO		.	>	N	^	n	~
F	SI		/	?	O	_	o	

No character is available for hex code 15 in the italic character table.

Character available with ESC (^

To print the characters in the table below, you must first send the ESC (^ command.

CODE	0	1	7
0		►	
1	⊕	◄	
2	●	⬆	
3	♥	⬇	
4	♦	◄	
5	♣		
6	♠	—	
7	•	⬆	
8	■	↑	
9	○	↓	
A	■	→	
B	♂	←	
C	♀	└	
D	♪	↔	
E	♫	▲	
F	♬	▼	△

International character sets

You can select one of the following international character sets with the default-setting mode or the ESC R command. For example, when you select "Italic France," the characters in the "France" row on the table below are used in the italic character table.

The following eight international character sets can be selected with the default-setting mode or with ESC R command.

Country	ASCII code hex											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USA	#	\$	@	[	\	\]	^	'	{	|	}	~
France	#	\$	à	•	ç	§	^	'	é	ù	è	~
Germany	#	\$	§	À	Ö	Ü	^	'	ä	ö	ü	ß
UK	£	\$	@	[	\	\]	^	'	{	|	}	~
Denmark	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	~
Sweden	#	□	É	À	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	\$	@	•	\	é	^	ù	à	ò	è	ì
Spain	Pt	\$	@	í	Ñ	¿	^	'	~	ñ	}	~

The following seven additional sets can be selected only with the ESC R command.

Country	ASCII code hex											
	23	24	40	5B	5D	5E	60	7B	7C	7D	7E	
Japan	#	\$	@	[	¥	]	^	'	{	|	}	~
Norway	#	□	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	\$	á	í	Ñ	¿	é	'	í	ñ	ó	ú
Latin America	#	\$	á	í	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	\$	@	[	₩	]	^	'	{	|	}	~
Legal	#	\$	§	•	'	"	¶	'	•	•	†	~

Glossary

The following definitions apply specifically to printers. If a word is italicized, see that topic for more information.

application program

A software program that helps you carry out a particular task, such as word processing or financial planning.

ASCII

American Standard Code for Information Interchange. A standardized coding system for assigning numerical codes to letters and Symbols.

bidirectional printing

Printing in which the print head prints in both directions. This increases the speed of printing.

bit

A binary digit (0 or 1), which is the smallest unit of information used by a printer or computer.

buffer

The portion of the printer's memory used to store data before printing it.

byte

A unit of information consisting of eight bits.

characters per inch (cpi)

A measure of the size of text characters, sometimes referred to as pitch. The printer's default setting is 10 cpi.

character table

A collection of letters, numbers, and symbols that provides you with the characters used in a particular language.

condensed printing

Printing in which the width of each character is approximately 60% of the width of standard characters. Useful for fitting wide tables or spreadsheets onto a paper.

continuous paper

Paper that has sprocket-feed holes on each side, is perforated between pages, and is supplied in a folded stack. Also called fanfold paper.

control code

Special codes used to control printer functions (such as a carriage return or line feed) instead of printing characters.

cpi

See characters per inch.

default

A value or setting that takes effect when the equipment is turned on, reset or initialized.

dot matrix

A method of printing in which each letter or symbol is formed by a pattern (matrix) of individual dots.

draft printing

One of two print qualities available on your printer. Draft uses a minimum number of dots per character for high-speed printing. See also LQ printing.

ESC/P

Abbreviation for Epson Standard Code for Printers. This system of commands gives you software control of your printer from your computer. It is standard for all Epson printers and supported by most application software for personal computers.

font

A font is a style of type designated by a family name.

form feed (FF)

A control code and control panel button that advances the paper to the next top-margin position.

hex dump

A troubleshooting feature that helps advanced users find the cause of communication problems between the printer and the computer. When the printer is in data dump mode, it prints each code it receives in hexadecimal notation and ASCII characters.

initialization

Returns the printer to its defaults (fixed set of conditions).

interface

The connection between the computer and the printer. A parallel interface transmits data one character or code at a time, and a serial interface transmits data one bit at a time.

italic

A typestyle in which the characters slant. *This sentence is italicized.*

line feed

A control code that advances the paper one line space.

LQ printing

One of two print qualities available on your printer. Near letter quality provides better readability and appearance at a reduced print speed. See also *draft printing*.

paper-park position

The position in which the paper is backed out of the paper path, but is still attached to the push tractor.

parallel interface

See *interface*.

printable area

The area of a page on which the printer can print. It is smaller than the physical size of the page due to margins.

proportional printing

Printing in which the width of the character varies from character to character. For example, a capital W receives much more space than a lowercase i. The result looks more like a typeset book than a typewritten draft.

push tractor

An optional, detachable device that automatically pushes continuous paper into the printer from the loading side.

RAM

Random Access Memory. The portion of the printer's memory used as a buffer and for storing user-defined characters. All data stored in RAM is lost when the printer is turned off.

reset

To return a printer to its defaults either by sending a command, an INIT signal, or by turning the printer off and then back on.

ROM

Read Only Memory. The portion of the printer's memory that is permanent. Information stored in ROM is used to control how the printer operates. Resident fonts are also stored in ROM.

self test

A method for checking the operation of the printer. When you run the self test, the printer prints the characters stored in its ROM.

subscript

Printing in which each character is printed at about two-thirds the normal height in the lower part of the character space.

superscript

Printing in which each character is printed at about two-thirds the normal height in the upper part of the character space.

tear-off

A paper feed operation that automatically feeds the perforation of continuous paper to the tear-off edge and then feeds the paper back to the loading position.

tear-off position

The position the printer feeds the paper to at the end of print job. You can change the position in the default-setting mode so that the paper's perforation meets the printer's tear-off edge or passes approximately 8 centimeters (3 inches) beyond the edge.

top-of-form

The position on the paper that the printer recognizes as the first printable line. This is the default top-margin position.

unidirectional printing

Printing in which the print head prints in one direction only. Unidirectional printing is useful for printing graphics because it allows more precise vertical alignment than bidirectional printing.

user-defined characters

Characters that are defined and stored in the printer by the user. Also called downloaded characters.

Index

Command descriptions are not indexed here. For information on a specific command, see the **Appendix**.

A

Application program, 1-19—24
Auto line feed, 3-6, 3-13, 3-21

B

Bidirectional printing, 3-6, 3-12, 3-21
Buffer, A-2
Buttons, 3-2—4

C

Cable
 clip, 1-2, 1-18
 parallel interface, 1-17—19
Cassette, paper, 1-14-16
Character
 fonts, 3-2, 3-5, **A-3**
 tables, 3-6, 3-11, A-3, A-23—26
Cleaning the printer, 3-14
Clip, cable, 1-2, 1-18
Color
 ribbon cartridge, 1-7, 1-11; **A-2**
 upgrade kit, 1-7-11
 Connecting the printer, 1-17—19
Continuous paper, 2-5—14, A-4, A-7
 loading, 2-7—9
 top of form, 2-9—10, 3-6, 3-12
Control panel, 3-2—4
Copy capacity, 2-15, 2-17, A-4

D

Data dump, see Hex dump
Default
 settings, 3-6—14, **A-12**
 setting mode, 3-6—14
Demonstration, 3-4, 3-6, 3-13
Download, 3-6, 3-13, A-2

Draft, 3-5, A-2, A-3

E

Envelopes, 2-16—17, A-5
 loading, 2-16
 specifications **A-5**
ESC/P 2, 1, 3-5, A-13—22

F

FF button, 3-2, 3-3
Fonts, 3-2, 3-3, 3-5
 button, 3-2, 3-3, 3-5
 draft, 3-5, A-3
 draft condensed, 3-5
 Epson Courier, 3-5, A-3
 Epson Prestige, 3-5, A-3
 Epson Roman, 3-5, A-3
 Epson Sans Serif, 3-5, A-3
 Epson Script, 3-5, A-3
 lights, 3-2, 3-5
 selecting, 3-5
FORM FEED button, 3-2, 3-3
Form length, continuous paper, 3-6,
 3-9—10, A-7
Forms, multi-part, 2-17, A-4

G

Graphics print direction, 3-6, 3-13, A-2
Guide, output, 1-12

H

Help, where to get for USA, i-3
Hex dump, 3-4, 3-4, 3-13

- |
- Initialization, A-12**
- Input buffer, A-2**
- Interface**
 - connecting, 1-17—19
 - specifications, A-9—11
- L**
- labels, 2-17—18, A-5**
- Lever**
 - paper-release, 2-6, 2-7, 2-12, 2-13, 2-14
 - paper-thickness, 2-15, 2-16, 2-17, 2-18
- Loading paper**
 - continuous paper, 2-7—10
 - envelopes, 2-16
 - labels, 2-17—18
 - manually, 2-4—5
 - multi-part forms, 2-17
 - single sheets, 1-14-16
- LQ printing, A-2**
- M**
- Maintenance, 3-14—15**
- Manual insertion, 2-4—5**
- Moving the printer, 3-16**
- Multi-part forms, 2-17, A-4**
- O**
- Optional push tractor, 2-5—14**
- output guide, 1-12**
- P**
- P&length**
 - continuous paper, 3-6, 3-9—10, A-7
 - manual insertion, A-4
 - single sheets, A-4
- Paper**
 - continuous, A-4
 - single sheet, A-4
- Paper cassette, 1-3, 1-14—16**
 - tips for using, 2-2—3
- Paper guide, 2-5, 2-12**
- Paper support 1-15**
- Paper-release lever, 2-6, 2-12, 2-13, 2-14**
- Paper-thickness lever, 2-15**
- Parallel interface, 1-17—19, A-9—11**
- Plugging in the printer, 1-13**
- Print direction, 3-6, 3-9, 3-13, A-2**
- Printable area, A-6—7**
- Printer stand, 1-4**
- Problems, see Troubleshooting**
- Protective materials**
 - replacing, 3-16
- Push tractor, 2-5—14**
 - installing, 2-5—6
 - loading paper, 2-7—9
- R**
- READY light, 3-2—3**
- Ribbon cartridge**
 - installing, 1-5—7
 - installing black ribbon, 1-5—7
 - installing color ribbon, 1-11—12
 - replacing, 3-15
 - specifications, A-7
- S**
- Safety approvals, A-9**
- Safety information for UK users, i-5**
- Safety instructions, i-6**
- Scalable fonts, 3-5, A-16**
- Self test, 1-14—17, 3-4**
- Single sheets, 2-2—5**
 - see also Loading paper
- Skip-over-perforation, 3-6, 3-9, 3-12**
- Special paper, 2-15—18**
- Specifications, A-2—12**
- Stand, printer, 1-4**
- Switching between continuous and single sheet, 2-13—14**
- T**
- Tear off, 2-10—11, 3-6, 3-9, 3-12**
 - adjusting, 2-2—3
 - position, 3-6, 3-9, 3-12
- Testing the printer, 1-14—17**

Toll-free number for USA users, i-3
Top of form position, 2-10—11, 3-6, 3-9,
3-12
Tractor, push, 2-5—14
 installing, 2-5—6
 loading paper, 2-7—9
Transporting the printer, 3-16
Troubleshooting, 3-16—26
Typestyles, 3-5, A-3

U

Unidirectional printing, 3-6, 3-9, 3-12, A-2
Unpacking the printer, 1-2

V

Voltage, 1-2, A-8
 power supply, A-8

W

Weight 1-5, A-8
Where USA users can get help, i-3